The Journal
OF THE
Michigan State Medical Society
ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

Vol. XIII GRAND RAPIDS, MICHIGAN, DECEMBER, 1914 No. 12

Original Articles

THE SURGICAL TREATMENT OF FACIAL PARALYSIS.*

E. H. BECKMAN, M.D.
ROCHESTER, MINN.

The first attempt to cure complete facial paralysis by surgery was made in 1895 by Ballance and Stewart (1) when they united the distal portion of the facial nerve to the side of the spinal accessory nerve. In 1898, Faure (2) united the trunk of the facial to the trapezius branch of the spinal accessory, the branch being divided with end to end anatomosis. In 1899, Kennedy (3) divided the facial nerve for facial spasm and united it to the spinal accessory end to side. The rationelle of this work is based to a large extent on the conclusions published by Ballance and Stewart in 1901, as well as on those of other members of the so-called "peripheral school." According to these observers, regeneration occurs in the distal segment of a divided nerve even when it is separated from its central connection. Such regeneration does not reach maturity unless the distal is again joined to the proximal segment, permitting transmission of impulses between the nerve centers and the periphery. This regeneration, however, is sufficient to maintain the isolated peripheral nerve in a fairly healthy state even for years. It also preserves the end-organs, thus, when the peripheral nerve is finally anastomosed with a healthy proximal nerve segment, under favorable circumstances, almost complete regeneration takes place, causing normal muscular contractions in the area supplied by the distal nerve. It, therefore, seems advisable in most cases of facial paralysis, especially in those where the injury to the nerve has been proximal to the stylomastoid foramen, to attempt anastomosis of the distal segment to a healthy motor nerve trunk for the cure of the distressing and disfiguring paralysis.

Manasse, (4) in 1900, and Barrago-Ciarella, (5) in 1901, showed by experimental work on animals that anastomosis between the facial and spinal accessory uniformly leads to complete restoration of movements in the facial muscles in about six months, the first evidences of regeneration occurring at about four and one-half months.

Since the work of Ballance and Stewart, a number of cases have been reported in the literature. Two nerves in particular have been selected as suitable for anastomosis with the divided end of the facial: the spinal accessory and hypoglossal. The reasons given for favoring the use of the hypoglossal are; that its nerve trunk is larger. The proximity of the cortical centers of the facial and hypoglossal nerves. Some of the fibers of the two nerves here a common origin and their centers are closely connected by association fibers, thus making cortical education and control easier after operation. The associated movements when present are not visible. Against the use of the hypoglossal is the argument that the difficulties of deglutition, phonation and mastication and the paralysis of taste on the anterior half of the tongue are much more distressing to the patient than the disability resulting from cutting the spinal accessory. In a recent case reported by Welty, (6) the atrophy of the tongue after three years was so extreme that speech was interfered with to a marked degree. He states that this would have been a serious handicap to anyone required to use the voice in earning a livlihood. It would seem that the spinal accessory is preferable because of its accessibility, its motility allowing union without tension, and the relatively small importance of the paralysis and shoulder droop resulting from cutting the nerve. Soon after regeneration occurs, the visibility of associated movements between the shoulder and facial expression is particularly annoying, but continued education of the cortical center in time almost entirely over comes this difficulty.

There can be no doubt that facial paralysis is more distressing to a patient physically and mentally than the paralysis resulting from the above methods of attempted cure. The operation is applicable to all cases of paralysis of the main trunk of the facial nerve. It has been

*Read before the Surgical Section of the Michigan State Medical Society, Lansing, Sept. 10, 1914.

used successfully in paralysis resulting from mastoid operations, suppurative otitis media of long standing, fractures of the skull involving the petrous portion of the temporal bone, traumatic and operative injury after exit from the stylomastoid foramen and Bell's palsy showing complete reaction of degeneration after several months treatment. The length of time the paralysis existed seems to have no effect on the time required for recovery. One cure has been recorded after twenty-nine years of paralysis.

If the muscles respond to galvanism, the prognosis is more favorable though absence of galvanic and foradic response is no contraindication to operation (Murphy 7). The best results are obtained in traumatic cases, neuritis and suppurative diseases being less hopeful. The condition and degree of atrophy of the facial muscles has a marked bearing on the results, it being quite evident that if the muscle fibers are entirely atrophied, their regeneration and resulting function is less likely to occur even though the nerve regenerates completely. (Taylor and Clark 8).

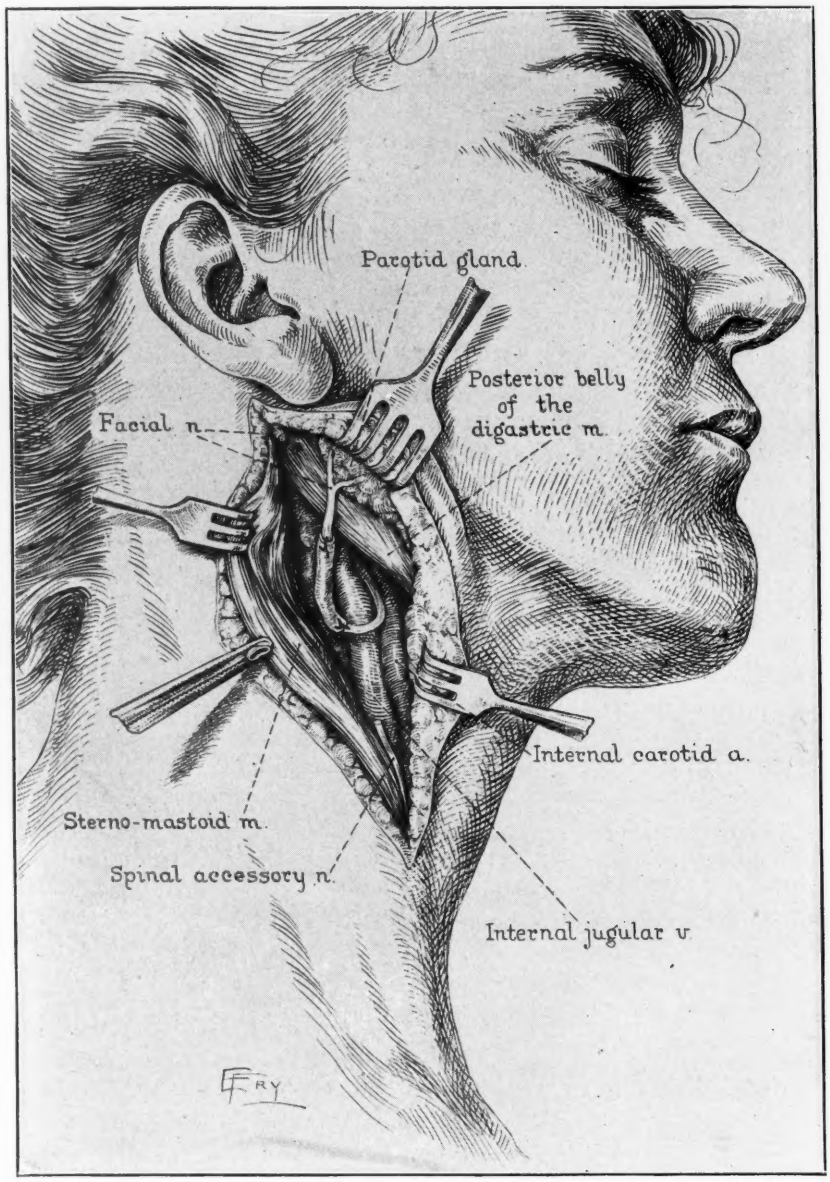

Fig. 1. Anastomosis between proximal end of spinal accessory and distal end of facial nerve covered with a cuff of vein taken from external or anterior jugular vein.

OPERATION.

It is needless to say that precision of technic and gentleness of handling the exposed nerves is essential to successful results. The presence of the slightest degree of infection or the formation of scar tissue at the site of anastomosis endangers the outcome. In endeavoring to overcome these complications and to assure a definite uninterrupted path for axone growth, several plans have been suggested:

Fig. 2. (A72332.) Patient at rest, showing face filled out on affected side and no deformity except eye open wider.

Fig. 3. (A72332.) Patient smiling. Note some atrophy of neck muscles due to sectioning spinal accessory nerve.

1. Wrapping the site of anastomosis with cargile membrane.
2. Surrounding the anastomosis with fascia or muscle (Murphy).
3. Fresh arteries hardened in formalin (foramitti).
4. Gelatin tubes hardened in formalin (Lotheisen).
5. Absorbable magnesium tubes (Payr).
6. Surrounding the anastomosis with fresh section of vein.

The last procedure has been used in the Mayo Clinic in three cases and I have not seen it described in the literature. The section of vein

Fig. 4. (A72332.) Forcible closure of eye on affected side and contracture of facial muscles showing nearly normal function.

protects the anastomosis with a thin cylinder which is already lined with endothelium and would seem to protect the sutured ends from the encroachment of connective tissue. In the three cases in which it was used, the restoration of function has been more perfect than in the one case in which the anastomosis was surrounded by fascia and muscle. I am not able to state definitely whether this is due to the technic or simply a coincidence. We expect later to publish the results of experimental work along this line. It is always easy to obtain a section of the facial, external or anterior jugular veins near the field of operation. An inch or inch and a half section of such a vein is slipped over the spinal accessory nerve before the anastomosis

is made and afterwards moved along until it completely covers the anastomosis. In all of our operations, four in number, we have used the main trunk of the spinal accessory nerve and made an end to end anastomosis (Fig. 1). One case has been operated upon too recently to obtain results.

thought to have retracted into the stylomastoid foramen. After freshening the end of the facial, it was united to the main trunk of the spinal accessory by three small silk sutures passed through the sheaths of the nerves after the manner of the stay sutures in blood vessel anastomosis.

Post-Operative History.—It has been difficult to obtain satisfactory information regarding this patient, but on April 22, 1914, in a reply to definite questions, he stated that the left side of his face was much fuller than at the time of operation, that he could more nearly close his left eye than before the operation but that it remained partly open at the inner angle. He also stated that he could partially draw up the left corner of his mouth. Efforts to raise his left arm caused the left corner of the mouth to draw up and the eyelid to quiver, showing that associated movements were present and that partial regeneration of the facial nerve must have occurred. He could chew his food and remove it from his left check without any effort, while before

Fig. 5. (A72332.) Showing normal use of arm after spinal accessory nerve sectioned.

Fig. 6. (A72332.) Showing slight associated movements of facial muscles when abducting arm.

CASE REPORTS.

CASE 1. (A9150). E. T. M. Male, age 35.

Examined in the Mayo Clinic April 4, 1912. Three months previous he had received a stab wound with a jack knife over the left stylomastoid foramen resulting in immediate and complete left facial paralysis.

Operation.—On April 8, 1912, the distal end of the facial nerve was exposed in the parotid gland and found to be divided just proximal to its main divisions. The proximal end could not be found and was

the operation he was obliged to remove it with his finger. His arm was somewhat lame but did not prevent him from performing his usual labors of a farmer. He believed that he was still improving.

CASE II. (A72332). P. H. G. Female, aged 28.

Examined in the Mayo Clinic August 19, 1912. In June, 1911, the patient had a mastoid operation on the right side. Five weeks later a second operation was performed, followed by complete facial paralysis on the right side.

Operation.—On August 23, 1912, the distal end of the facial nerve was severed at its exit from the stylomastoid foramen and sutured end to end to the main trunk of the spinal accessory. The anastomosis was covered with a section taken from the facial vein.

Post-Operative History.—In a letter written January 24, 1913, a little less than four and one-half months before the time of operation, the patient stated that the only motion noticed for several days was that the corner of her mouth pulled back when she raised her right arm. At the present time, five months after the operation, she can retract the corner of her mouth without moving her arm and is able to partially close her eye. I examined this patient in June, 1914. The accompanying photographs illustrate the amount of regeneration and the use of facial muscles (Figs. 2-6). She is still improving and I believe that the function will eventually be restored without any associated movements since these are growing less as time goes on. There is some soreness and very slight disability in the use of the arm, but this also is rapidly disappearing.

CASE III. (A80021). R. G. Female, aged 26.

Examined at the Mayo Clinic February 14, 1913. This is an interesting case because the patient had an aneurysm, probably of the lateral sinus of the right side. For six years she had been deaf in her right ear which had discharged continuously with at intervals severe hemorrhage. There was a pulsating tumor an inch in diameter in the parotid gland just in front of the external auditory meatus due to an aneurysm of the facial artery. She also had an aneurysm of the internal carotid artery on the left side of the neck just below the angle of the jaw producing a pulsating tumor two inches long by an inch in diameter. Right facial paralysis had existed for five years since an operation for a growth in the right auditory canal. Patient thinks she has never closed her right eye since childhood.

Operation.—On February 26, 1913, the external carotid artery and internal jugular vein on the right side were ligated as well as the common carotid artery on the left side just below the bifurcation and also the external and internal jugular veins on the left side.

Post-Operative History.—The patient had an uninterrupted convalescence from this procedure and on May 12, 1913, an anastomosis was made between the distal end of the facial nerve, which was severed at its exit from the stylomastoid foramen, and sutured end to end to the main trunk of the spinal accessory. On February 4, 1914, nearly nine months after the operation, the patient writes that in the morning on arising she notices that she can close the right eye the same as the other and that there is a little movement on the right side of the face when she talks. Since this time, she has made progressive but slow improvement. The associated movements between the arm and face in this case have never seemed to be at all marked and she was perfect use of her arm except that there is some soreness present.

CASE IV. (A113147). E. G. Female. Aged 46.

Examined August 31, 1914. Patient had been operated on July, 1904 for acute mastoid trouble. A second operation was performed five weeks later and, following this, there was complete facial paralysis on the right side.

Operation.—On September 3, the spinal accessory and the facial nerves were anastomosed. The anastomosis was covered with a section taken from the facial vein.

REFERENCES.

1. Ballance, Chas. A., Ballance, Hamilton A., and Stewart, Purves: Operative Treatment of Chronic Facial Palsy of Peripheral Origin. *British Med. Jour.*, 1903, 1, 1009-1013.
2. Faure. Treatment Chirurgical de la Paralysie Facial per Anastomose Spino-faciale. *Congress de Chirurgie.* 1898. Quoted by Ballance and Stewart.
3. Kennedy: Phil. *Trans. Roy. Soc. Lond.* Series B, CXCIV, 1901. Quoted by Ballance and Stewart
4. Manasse, Paul: Ueber Vereinigung des N. facialis mit dem N. accessorius durch die Nervenpfropfung (Greffe nerveuse). *Archiv. f. klin. Chirurgie,* Langenbeck, 1900, LXII, 805-834.
5. Barrago-Ciarella: *II Policlinico, Rome,* Feb., 1901, fasc. 3, p. 21. Quoted by Ballance and Stewart.
6. Welty, C. F.: Anastomosis of the Facial and Hypoglossal Nerves for Facial Paralysis. *Jour. Amer. Med. Assn.*, 1914, LXII, 612-613.
7. Murphy, John B.: Neurological Surgery. *Surg., Gynec. & Obst.*, 1907, IV, 385-500.
8. Taylor, A. S. and Clark, L. P.: The Surgical Treatment of Facial Palsy, with the Technic of Facio-hypoglossal Nerve Anastomosis. *Med. Record,* 1904, LXV, 321-325.

RECENT DEVELOPMENTS IN THE PATHOLOGY AND ETIOLOGY OF PNEUMONIA.

T. D. GORDON, M.D.
GRAND RAPIDS, MICH.

Pneumococci may be found in the mouths and throats of most healthy people. How large a proportion of these organisms are virulent for man is very hard to determine. Man is very resistant to infection by the pneumococcus, and it is apparent that the changes in the lung—the exudation, the consolidation and the fibrin formation—are a protective reaction to prevent the spread of the infection.

Pneumococci are able to reach the blood only in severe cases, and their presence there gives a bad prognosis. The organisms isolated from the blood of these severe cases of pneumonia vary enormously in their virulence for animals. It required 500,000 times as much of a fresh boullion culture from one patient's blood to kill a mouse as it did from that of another. They have isolated at the Rockefeller hospital four strains or groups of pneumococci which are differentiated from one another, not by culturai and morphological characteristics, but by ag-

glutination reactions and protection experiments.

The natural infection in man is very hard to explain. Recent animal and cultural experiments have thrown much light upon it. If pneumococci are planted in boullion they will not grow unless very large numbers are used in proportion to the amount of boullion, while a very small number will grow upon a solid medium or upon filter paper kept moist with boullion. In order to grow, the germ must produce changes in its immediate surroundings, and if these changes are not kept fairly constant growth cannot occur. In animals pneumonia can be produced by the injection of pneumococci into the trachea only when very large numbers of bacteria and a relatively large amount of the culture material are forced into the smaller bronchi. Meltzer suggests that the infection occurs because the smaller bronchioles are occluded by the culture material, and that the closed cavities formed offer conditions much more favorable to the growth of the germs.

Local changes in the lungs, therefore, are an important factor in determining an infection in man, and it is probable that cold or chilling act to produce pneumonia more by causing an increased secretion of mucus and producing local changes in the lungs than they do by lowering the general resistance of the body.

We have no proof that the organisms causing infection are more virulent than those present in normal throats, and if this were true we would expect more contagion and more epidemics than actually occur. Undoubtedly, diminished general resistance plays an important role, but we know very little of the exact means by which the infection is thus brought about.

The nature of the soluble toxins which pass through the body and produce the general symptoms of the disease has been the subject of much investigation. There is a marked retention of chlorides in all the tissues of the body in pneumonia but the cause of the retention is not known. Pneumococci produce acid readily and Hamburger has attempted to show that the symptoms in pneumonia and the chlorin retention are both due to the acidosis. The more recent work along this line fails to prove that the general manifestations of the disease are due to either of these causes.

An endotoxin has been obtained from pneumococci by placing them in a 2 per cent. sodium cholate in normal salt solution or by simply exposing them to salt solution for 48 hours at 37° C. This toxin produces hemolysis of sheep's blood corpuscles and when injected intravenously into guinea pigs or rabbits it produces death resembling anaphylactic shock. It is destroyed by heating one half hour at 56° C. It can be obtained in pure form and its toxic effect is neutralized if it is mixed with cholestrin and kept at 37° C. for fifteen minutes. If it is injected immediately after being mixed with cholestrin, or if the injection of toxin is immediately followed by an injection of cholestrin it is not neutralized.

As yet the attempts to explain the crisis in pneumonia have not been satisfying. At present it appears to be more of a true immunity reaction, for it takes about seven days to produce the maximum concentration of antibodies in artificial immunization. Dochez, in 1912, and Clough, in 1913, were able to demonstrate the presence of protective substances in the serum of patients soon after the crisis. These were active only against germs grown from the patient himself, and failed to affect stock cultures. Resolution is due to ferments set free by the breaking down of leucocytes and, according to Lamar, to the formation of soaps of fatty acids.

SYMPTOMATOLOGY, DIAGNOSIS AND PROGNOSIS OF LOBAR PNEUMONIA.

COLLINS H. JOHNSTON, B.A., M.D.
GRAND RAPIDS, MICH.

It is hardly necessary to detail at length the symptoms of a typical case of lobar pneumonia. The sudden onset, usually with a chill, the stabbing pain in the side, the superficial and accelerated respiration, the frequent and troublesome cough, painful and half suppressed, the characteristic tenacious, rusty-looking sputum are all too familiar to need more than mention.

SYMTOMATOLOGY.

In a well marked case general weakness, headache, complete loss of appetite, restlessness, stupor and delirium may soon appear. The course varies greatly. In a majority of cases, in from three to ten or twelve days improvement suddenly takes place and convalescence is speedy. Severe cases may have a fatal termination, and in a third small class of cases the disease may follow a protracted course.

The pain in the side is due to the accompanying pleurisy and is, therefore, absent in cases of central pneumonia. The pain may be almost entirely in the abdomen and a number of cases have been reported in which the pneumonia was overlooked and an operation for appendectomy performed on account of the severe abdominal pain. Such mistakes can be avoided by paying more attention to the history and physical signs in the chest. A number of cases are also on record in which typhoid fever has been diagnosed because of the abdominal pain, tympanitis and diarrhea. A careful examination of the chest and a widal test would have made the necessary differentiation.

The cough is probably not due to the disease in the alveoli but to the co-existing bronchitis. In rare cases it is entirely absent, especially in the pneumonias of old or debilitated persons and in alcoholics.

The sputum is at times merely tinged with blood and in other cases may consist almost entirely of blood. The typical sputum usually appears towards the end of the first or on the second day, but may not be seen until later or may be absent throughout the disease. The temperature usually rises rapidly, reaching one hundred three to five degrees in a few hours. In children or old persons and in drunkards the rise may be more gradual and in the aged the disease may run its entire course without any fever whatever. Pneumonia has been termed the natural death of the aged and in the great majority of people reaching the age of seventy, life is brought to a close by pneumonia, which often goes unrecognized until found upon the autopsy table.

The crisis occurs most frequently upon the seventh day. It may occur as early as the third. In a recent case of a man seventy years of age with a valvular heart lesion of over forty years standing, in whom I gave a most unfavorable prognosis, the crisis occurred upon the morning of the third day and the patient made a rapid recovery.

DIAGNOSIS.

The diagnosis of lobar pneumonia is ordinarily not difficult. Irregular or atypical cases, however, are often not recognized for considerable periods of time. This is due more to carelessness in making the examination than to anything else, although occasionally mistakes are made when every known expedient has been resorted to. In central pneumonia it is sometimes impossible to be sure of a correct diagnosis for several days. Physical signs may be entirely wanting: but even in these cases the sudden onset, the sharp fever, the increase in the number of respirations per minute, the dyspnea and the character of the cough and expectoration should suggest the probable diagnosis.

The acceleration of respiration is very striking, in adults reaching thirty or forty or even sixty respiration per minute. I have seen a child two years old with a respiration of one hundred per minute for five or six days. In no other disease is the normal pulse-respiration ratio of three and a half or four to one so greatly disturbed and a ratio of two and a half or three to one should always suggest a pulmonary lesion.

In a typical case of lobar pneumonia, there is found over the consolidated area, most frequently over one of the lower lobes, dullness on percussion, increased tactile and vocal fremitus, moist rales and bronchial breathing. Early in the disease percussion elicits a somewhat tympanitic note, but with increased exudation into the alveoli the resonance becomes dull. But as some air is usually present in the larger bronchi the percussion note never becomes so completely dull or flat as it does over large pleuritic effusions. The sensation of resistance on percussion is likewise much less marked than over a pleuritic exudate. In central pneumonia there may be no dullness whatever.

In the beginning of the disease coarse or fine rales and the characteristic crepitant rales on inspiration may be heard. The crepitant rale, however, is not pathognomonic of pneumonia nor is it heard in every case. When consolidation is complete loud bronchial breathing is heard.

A considerable number of cases are not typical in their findings, especially when the disease does not develop in the normal manner. Bronchial breathing may not make its appearance for several days and dullness may be hard to make out. Even in these cases, however, tactile fremitus is usually increased, and the finding of feeble vesicular breathing on one side with the typical history and blood stained sputum should suggest the diagnosis. In cases in which the bronchial tubes are filled with exudate, bronchial breathing and tactile fremitus may be diminished or entirely absent. In some cases the signs of consolidation do not appear until after the crisis is past.

Pneumonic consolidation must be distinguished from pleurisy with effusion, the symptoms of which sometimes very closely resemble those of pneumonia, although in the latter the cough and pain are more distressing, the dyspnea greater, the temperature higher and the sputum characteristic. Tactile fremitus and voice sounds are usually increased in the pneumonia of adults and diminished or absent in pleuritic effusions. Bronchial breathing may be heard in both diseases but is usually feeble when occurring in pleurisy and loud in pneumonia.

In pleuritic effusions of the left side the diagnosis is aided by the finding of obliteration of Traube's space and the presence of dislocation of the heart to the right, which conditions are never caused by a pneumonia.

The diagnosis between pneumonia and pleurisy with effusion in children is sometimes difficult. In them bronchial breathing is perhaps the rule over a pleural exudate and tactile fremitus is very apt to be absent. In these cases percussion usually gives definite information and is of very much greater value than auscultation. This is especially the case if the dullness extends over the entire side. The fluid is not always at the bottom of the pleural cavity pushing the lung up and back, but may be spread out in a thin layer a quarter or half an inch thick between the lung and the chest wall, giv-

ing rise to dullness over the entire side. You never find dullness all over one side in pneumonia.

Such extensive dullness is never encountered in children excepting in pleurisy with effusion. All other signs are often misleading. The more fluid there is in a chest, the louder may be the bronchial breathing, for the lung is pushed upwards or in towards the spine in which condition it becomes a good medium for the transmission of sound, and as fluid is also a good conductor of sound, beautiful bronchial breathing is the result. I have often made the diagnosis of pleurisy with effusion in both adults and children by percussion alone. When the fluid is small in amount and the lung not compressed, bronchial breathing may not be heard. It is this presence of bronchial breathing over fluid that causes a pleural exudate so often to be mistaken for a consolidated lung.

The auscultatory signs in these cases may vary greatly. Every kind and degree of bronchial breathing may be heard. Even vocal resonance and tactile fremitus may be present over an effusion and one will sometimes hear the most beautiful pectoriloquy. But one sign can always be depended upon, namely, the wooden character of the dullness on percussion. No amount of infiltration of the lung can give rise to that degree and quality of dullness that constitutes the most reliable sign in differentiating between these two conditions. One should be sufficiently expert to be able to make the diagnosis without the necessity of resorting to exploratory puncture.

It sometimes requires several days to diagnose between lobar pneumonia and acute pulmonic tuberculosis or galloping consumption which may set in with a chill and other symptoms of lobar pneumonia. *Primary* tuberculous pneumonia is a rare disease, and the history of previous tuberculosis with the difference in the symptoms and course of the disease, and the information derived from an examination of the sputum, usually enable us to may a diagnosis at a time when it would be impossible to do so from physical signs alone.

In some cases unfavorable constitutional symptoms such as anemia, debility and tuberculous tendencies appear to retard resolution which may be delayed several weeks or even two or three months. During this time there may be more or less elevation of temperature and a continuation of dullness and bronchial breathing. Unresolved pneumonia, however, very rarely if ever ends in consumption so that in cases in which resolution is delayed for many weeks, especially in children, the anxious relatives may be assured with a great deal of confidence that the case is not likely to terminate in tuberculosis. Osler says that the instances of acute phthisis which have followed an acute pneumonic process have been tuberculosis from the outset.

Almost all cases of pleural effusion that follow pneumonia are purulent in character and due to the pneumococcus. Serous effusions are usually tuberculous, and in spite of their tuberculous etiology the prognosis for immediate recovery is good.

Abscess of the lung, pericarditis, endocarditis and meningitis are the most frequent complications of lobar pneumonia. Embolism, thrombosis, cerebral hemorrhage and encephalitis occur less frequently. The diagnosis between meningeal symptoms due to the presence of the pneumococcus and true meningitis is sometimes very difficult. The stiffness of the back and neck, pain in the head, stupor and coma are normal to both conditions. The diagnosis can frequently be made only by the aid of lumbar puncture.

Heart failure constitutes one of the most serious complications and is more apt to take place about the time of the crisis, so that this is the most dangerous period of the disease and is the time when we should see our patient most frequently. A blood pressure appreciably below the normal is of unfavorable significance and any considerable fall suggests danger. As the crisis approaches, therefore, the blood pressure should be taken sufficiently often to detect the first signs of a failing heart in order that the necessity for stimulants and heart tonics may be determined before the pulse or heart sounds indicate their need. By delaying the use of stimulants too long many cases may be lost. They should be given in sufficient amounts to maintain the blood pressure at a slightly higher point than the pulse rate.

PROGNOSIS.

The prognosis depends upon, first: The patient's age, becoming worse with advancing years. Second. The amount of lung involved. Third. The general character of the symptoms. A very high temperature—105° or over—is exceedingly fatal, while an abnormal temperature may indicate either a mild attack or deficient resistance. Pneumonia is more frequent in men but more fatal in women. The habitual use of alcohol renders the prognosis more unfavorable as is shown by the following table:

Pneumonia—428 Cases.

	Died	Percentage Dying	Percentage Recov'd	Percentage Recov'd
Markedly alcoholic	36	70	15	29
Moderately alcoholic	52	32	109	67
Non-alcoholic	45	20	171	79

The right lung is more frequently implicated and also gives a higher mortality.

Alfred Loomis used to say that the prognosis

was bad with a pulse of one hundred twenty or over. A sudden drop in blood pressure is of serious significance. A slow gradual decline of twenty millimeters or more indicate asthenia and calls for strychnia.

Gibson, of Edinburgh, has called attention to the fact that when the blood pressure falls below the pulse rate the outlook is unfavorable. When the arterial pressure expressed in millimeters of mercury equals or exceeds the pulse rate expressed in beats per minute, the condition of the patient may be regarded as favorable.

Any irregularity or inequality of the pulse and any change in the character and intensity of the heart sounds are of significance as presaging the advent of heart failure.

McKenzie says: "In all cases that I have met with, when the pulse showed even an occasional irregularity before the crisis was reached, death supervened. I have not found a single exception to this rule for over ten years; and while extended experience may prove it fallacious, irregularity of the pulse with pneumonia must at all events be looked upon as a serious symptom. In pneumonia the amount of arterial pressure, the rate of the pulse and its rhythm, are each of them the most important indication we possess. Within a few hours after the initial rigor the fatal issue may be too plainly foretold by the character of the pulse. I have rarely seen an adult with a pulse of over one hundred forty that recovered."

The character of the second pulmonic sound is of great significance. The pulmonic second sound becomes accentuated when the tension in the pulmonary artery is increased and is a measure of obstruction in the lung on the one hand, and of the power of the right ventricle on the other. If this accentuation becomes less marked, it is either because the obstruction is diminished which is a favorable sign, or because the right ventricle is becoming weaker with all that this implies. Which of these two conditions is present is easily determined by the general symptoms. Failure of the right heart as indicated by weakening of the second pulmonic sound with increase of the heart dullness to the right of the sternum is a most unfavorable sign. The late A. H. Smith used to say that he had never seen a case with a sharp distinct second sound over the pulmonary artery in which a favorable prognosis as to the immediate future of the patient was not justified.

In most cases of pneumonia leucocytosis is present, numbering from fifteen to forty thousand per cubic centimeter. The increase is usually proportionate to the rise in temperature and represents the degree of infection present. A moderate leucocytosis of from fifteen to twenty thousand points to a mild attack with sufficient resistance on the part of the patient to give a favorable prognosis, while a count of from twenty to sixty thousand indicates a much more serious form of disease. An absence of leucocytosis shows that the patient has not sufficient power to react and renders death from toxemia probable.

The presence of pus in the sputum is also of unfavorable import as is also the absence of sputum altogether.

Likewise when the digestive system is disturbed, when disturbances of the alimentary tract or severe abdominal distress or tympanitis appear, the prognosis is rendered more unfavorable.

Great restlessness, sleeplessness, hyperpyrexia, severe headache and violent delirium suggest severe intoxication and are causes of anxiety.

THE TREATMENT OF PNEUMONIA.

C. G. JENNINGS, M.D.
DETROIT, MICH.

In this paper the treatment of acute lobar pneumonia in the adult only will be discussed. A specific therapy for pneumonia either by biological or chemical products is the aim of modern investigation. The various forms of specific therapy that are before the profession, at the present time, are in the experimental stage.

SERUM THERAPY.

A soluble toxin elaborated by the pneumococcus has not been demonstrated. Therefore an anititoxic serum for pneumonia such as diphtheria antitoxin or tetanus antitoxin cannot be produced.

An antibacterial serum produced from animals actively immunized against the pneumococcus has been found by various experimeters to have a favorable influence upon the course of pneumonia in man. The most notable work in this field is that of Neufeld and Handel (1), in Germany, and that of Dochez and Cole, of the Rockefeller Institution. The studies of the latter observers indicate that while a large majority of cases of lobar pneumonia are due to the pneumococcus, at least four different strains of this organism can be isolated. "From the point of view of specific therapy this is equivalent to saying that they are due to at least four different organisms." (Cole).

To effectively apply serum therapy in a given case of pneumonia it is necessary therefore to know the strain of the infecting organism in that particular case. The method of identification of the strain of the organism and the exhibition of the serum specific for this strain is, at the present time, not practicable outside of well equipped hospitals and laboratories.

VACCINE THERAPY.

The reports of the treatment of pneumonia by a pneumococcus vaccine, prepared in the ordinary way, are conflicting and are received with suspicion by both bacteriologists and clinicians. Rosenow and Hektoen have developed a modified vaccine prepared from pneumococci autolysed in salt solution. The soluble portion is toxic, has little immunizing power and moreover, actually interferes with the development of antibodies in animals. The insoluble, non toxic portion has marked antigenic properties, and is more active in protecting animals than vaccine prepared from the whole pneumococci. The autolysed vaccine of Rosenow and Hektoen is available, under restriction, for use by the profession. From the results of the use of this modified vaccine in a series of controlled cases of pneumonia, Rosenow and Hektoen believe that this method of treatment is of distinct value.

A limited personal experience in the treatment of pneumonia with serums and vaccines other than those mentioned has been unsatisfactory.

The leucocyte extract of Hiss has had a limited experimental use in the treatment of pneumonia. The method is an attempt to artifically increase a type of immune bodies and is deserving of further study.

SPECIFIC TREATMENT BY DRUGS.

The various remedies brought forward as specifics for pneumonia in the past have not stood the test of wide experience. At present but one remedy, quinine, has any considerable support in the United States. At different times quinine has been advocated as a specific for pneumonia and forgotten.

Galbraith, Petzold, Henry and S. Solis Cohen are its recent advocates. Cohen's method of administration is to give hypodermically an initial dose of from 15 to 25 grains of quinine and urea hydrochloride, the dose regulated by the height of the temperature and the severity of the other symptoms, and to follow this in three or four hours by a second injection. A third injection may be given some time within the first twenty-four hours. This dosage is repeated on the second day and on the third day, if necessary. Usually from 90 to 150 grains are given in from 48 to 60 hours. After that the remedy may be given in doses of 5 to 10 grains by the stomach during the active period of the disease.

"Cinchonism does not develop. Temperature and pulse-rate fall gradually and proportionately, and respiration more rapidly, with a tendency to restoration to the normal pulse-respiration ratio. Blood pressure may at first decline with temperature and pulse frequency, but soon returns to the former or a higher level; often it remains stationary or increases. The complete clinical picture, so far as regards the rational symptoms, objective and subjective, is thus favorably changed. The patient professes comfort; the pulse is full and strong, of moderate frequency and good tension; respiration is astonishingly easy, even when the rate is not markedly altered; the cough is greatly diminished; the delirium, if present, is abated, or may even cease. Crisis does not occur. Termination is by lysis at about the ordinary time, five to twelve days. The only critical phenomenon observed, and this but rarely and in slight degree, is perspiration. Usually there is some mild sweating with the early fall of temperature and respiration.

"Percussion and ausculation signs, however, are uninfluenced. Even when the case is seen and treated comparatively early, dulness and bronchial breathing increase. The rales of resolution appear at the usual time, but not earlier. Involvement of new areas may take place during treatment, with return of symptoms, necessitating new injections.

"The most striking results of the larger doses of quinine are thus functional; and since the most significant features are the relief of respiration and the maintenance of normal cardiac vigor and blood pressure, it seems logical to infer that the effect is chemical and antitoxic. This view is further borne out by the absence of quinine intoxication, suggesting a mutual neutralization of disease-poison and drug. It may be, however, that the antitoxic action is indirect; or that the drug acts, in part at least, as a direct stimulant to the autonomic cardio-respiratory centers.

"In making the injection the following precautions must be observed, otherwise there may be cellulitis, slough or abscess. The syringe is filled with a 50 per cent. solution of quinine and urea salt in sterilized water, and the needle is inserted deeply, through skin previously painted with tincture of iodine, into a muscle. The syringe is emptied thoroughly so that the solution does not drop upon the skin when the needle is withdrawn. The point of puncture is sealed with iodoform-collodion. Thousands of injections have been made in this manner without ill result of any kind."

In the few cases that I have had an opportunity to begin the administration of quinine and urea-hydrochloride early, a critical observation leads me to believe that the course of the disease in these cases has been modified by it after the manner detailed by Cohen.

While we are searching for, or perhaps trying out, a specific remedy a rational therapy of pneumonia based upon our pathological knowledge and clinical experience must be our recourse.

Lee of London well says: "Every case of

pneumonia is a fight for life." From his first visit, regardless of the apparent vigor of the patient and the benign onset of the disease, the physician must have in mind the dangers he almost certainly will have to combat in the week or ten days before convalescence begins. Every possible danger should be considered early. Every accident anticipated. Events move rapidly in pneumonia and preparations to meet its various emergencies must be made early and with deliberation, that everything may be in readiness for immediate use when necessity arises.

Our therapy may, perhaps, best be illustrated by detailing the sequence of events in a typical case of severe pneumonia in a patient of average vigor, terminating by crisis on the 7th to 10th day.

The patient is first seen a few hours after the initial chill. The work of the first twenty-four hours is the preparation of the patient and his environment for the short but grave illness that has begun. An efficient nurse is an immediate necessity and later on, if possible, another should be added. Here economical questions and personal preferences must be put into the back ground. The situation is too grave to admit of hesitation or delay.

Every detail of the sick room should be given thoughtful attention. Every convenience for rapidly and quietly caring for the needs of the patient should be provided. A room that can be made into a fresh air chamber is the ideal. The temperature should be from 60° to 65° Fahrenheit with a rapidly changing air. The beneficial influence in the course of pneumonia of an abundance of fresh air is unquestioned. Fresh air, however, is not of necessity cold air and vice versa. Debilitated patients, the aged and the very young should not be exposed to too low a temperature; 60° should be the limit A lower temperature makes nursing difficult, unwisely exposes the attendants and there is no good evidence that it is of benefit to the patient. Patients with pneumonia recover just as well or better in the fall and spring months when warm weather makes a reduction of the temperature of the sick room below the seventies impossible.

The routine of the diet should be prescribed. For the first twenty-four hours, the simplest and blandest liquid foods should be given. Diluted milk, a cereal gruel, or a delicate broth, not to exceed six ounces in quantity, may be given every third hour or less frequently if an irritable stomach marks the onset. A liberal quantity of water, plain or carrying an agreeable fruit juice sweetened or not, as the taste of the patient indicates, should be prescribed.

A cathartic may be the first medication; castor oil, calomel followed by a saline, a saline alone, or a compound cathartic pill. The chill, the pain, and the toxic shock of the infection may demand a single hypodermic injection of morphine. Dover's powder in tincture, two to five minims, with one or two drachms of solution of potassium citrate, may replace the morphine to relieve pain, cough and restlessness. This combination has the added value of a diaphoretic and diuretic. In the event of sharp pleuritic pains, the ice bag, a cold coil or dry cups may be applied. Fixation of the chest by careful strapping gives relief. Cold may be disagreeable. A hot water bag or a transient hot stupe often relieves where the ice bag fails.

In this early stage shall we bleed? I should say no. In studying pneumonia case records of the old bleeding days, the relief recorded is shown to be too transient and the permanent benefit too doubtful to risk such sacrifice.

We have now outlined a rational plan of procedure for the first day of the disease. If a specific treatment is to be given this is the time to begin. The method of Cole is not now available. Rosenow's vaccine may be obtained for experimental observation. Stock pneumonia vaccines and serums are on the market. Quinine is accessible to all and my present experience justifies me in urging its administration after the method of Cohen. It should, however, supplement, not replace other treatment.

The three or four days succeeding the day of onset is the period of conservation of the patient's vitality for the struggle against the increasing toxemia that will soon threaten to destroy life with respiratory or circulatory failure. Our therapeutic energies will be devoted to the maintenance of the functions of the nervous system, of nutrition and of elimination.

Pain must be relieved and sleep promoted. One-half to one grain of codein hypodermically at night to favor sleep. The Dover's powder of the first day may be demanded, or rarely, a repetition of the morphine. Opiates must be used with caution and only to meet a distinct indication. In certain cases sodium bromide will be an efficient sedative and I have found veronal a safe and reliable hypnotic, alone, or in combination with codein or sodium bromide. Restlessness, insomnia and delirium are toxic phenomena. The abundance of cool fresh air of modern therapeutics, the ice cap, or a tepid hath will relieve toxemia and diminish the necessity of drugging for sleep.

During this period digestion, nutrition and elimination demand close attention. Wasting is very rapid in pneumonia. Starved tissues elaborate antibodies with reluctance, and fall an easy prey to an invading infection. Therefore nutrition must be held to the highest point.

Acute colitis frequently attends pneumonia and with its flatulence and toxic absorption may be a complication requiring careful consideration.

The diet should receive strict supervision. A

calorie content of at least 2000 or more with 60 to 80 grams of protein are demanded to hold up nutrition. Milk properly diluted, modified or fermented may be the staple. Cereal gruels, broths, and meat juices, egg white, whole eggs, jellies and ice cream are available nutriments. Fruit juices carrying a good quantity of sugar of milk are grateful and nutritious, although some febrile stomachs do not endure them well. From six to eight ounces of fluid food should be given every two, three or four hours. Food and the administration of medicine and all disturbing attentions should be so timed that they come together and give the patient two, three of four hours of continuous rest. Sleep should not be interrupted. Flatulence embarrasses the heart and respiration and should be relieved promptly. Aromatic ammonia, camphor, chloroform water, are useful. Enemas, stupes, or the colon tube may be required.

During this period elimination should be favored. A gentle laxative or enema should be given daily. Renal excretion may be stimulated by a refrigerant alkaline diuretic, such as solution of potassium citrate and an abundance of water.

The fever of pneumonia rarely requires direct treatment. Antipyretics and cardiac depressants find no place here—102° to 104° is the normal temperature range of pneumonia. It is the toxemia of pneumonia, not the temperature that is dangerous. Hyperpyrexia is rare and is best met by hydrotherapy.

From the fourth or fifth day on is the period of danger from circulatory or respiratory failure. The respiration, the heart's action, the pulse, and the blood tension should be carefully watched for evidence of weakness. A pulse of 110 to 120 is ominous. An occasional extra systole may be the first warnings of a gravely poisoned myocardium. A cyanosis or the rales of edema may warn us of a dilating right ventricle. A falling blood pressure is evidence of vaso-motor paresis. Modern pathology teaches us that, in the circulatory failure of pneumonia, the heart alone is rarely at fault. This is reasonable. A perviously healthy heart would not often succumb so quickly to myocardial inflammation or degeneration. Toxic vaso-motor paralysis in the splanchnic area is the factor of primary importance in the circulatory failure of pneumonia. The heart pumps its blood into the stagnant splanchnic pool and dies of acute anemia.

What are the resources of therapeutics to arrest this advance of vaso-motor paralysis and myocardial weakness and hold up the circulation until the crisis is past? We take it for granted that up to this time every effort has been made to limit toxemia, to conserve the strength, to support nutrition and to quiet the nervous system.

In the order in which their administration may be begun vaso-constrictors and cardiac tonics may be enumerated as follows: camphor, strychnine, digitalis, caffeine, enteroclysis, adrenalin.

Early in the second therapeutic period of pneumonia, the period of conservation, camphor may properly be given by the stomach. Two or three grains in capsule may be given every four hours. It is promptly absorbed and is an efficient nerve sedative, carminative and mild vaso-motor tonic. German authorities attribute to it a specific action on the pneumococcus. Later, urgency and certainty of action demand administration subcutaneously.

Strychnine does not warrant the confidence too often given it to the neglect of more important remedies. In conditions of grave circulatory failure it should give way to others.

Digitalis hold a high place in the therapeutics of circulatory failure. When the condition is primarily cardiac, digitalis finds its proper place. A tired myocardium laboring and dilating under the overstrain incident to pulmonary obstruction may respond to digitalis. Unfortunately the febrile heart is refractory to digitalis stimulation, and too often its action is disappointing. When given early the infusion, two drachms every six or eight hours should be the dose. Later hypodermic administration of digipuratum or digalin should be selected. Digipuratum or strophanthin intravenously is a desperate resort but may be life saving.

Caffeine is an active cardiac tonic and a safe vasoconstrictor stimulant and may be given in full doses subcutaneously, two or three grains every three, four, or six hours.

Enteroclysis is often a life saver in conditions of splanchnic over-distension. Locally it stimulates vasoconstriction; absorbed, it fills collapsed vessels, dilutes the circulating toxins and stimulates their excretion by the kidneys. Food in the form of glucose, maltose or alcohol may be added to the normal saline.

In adrenalin we have a vaso-motor constrictor remarkable for its prompt and efficient action. Its selective action is on the splanchnic area. It is then, the ideal remedy to combat the vaso-motor paresis of pneumonia. I feel sure I have seen it tide a patient over the critical period of pneumonia when all clinical signs pointed to impending circulatory failure. Ten to fifteen minims of the 1-1000 solution diluted with one or two parts of normal saline solution may be injected intra-muscularly or preferably, intravenously and repeated every one, two or three hours for several doses. Its well known transient action has been cited as an argument against its use. Even though transient in action it pushes blood from the splanchnic area to the nerve centers and the myocardium and gives

them a chance to regain their functional activity.

DIFFUSIBLE STIMULANTS.

The cardiac asthenia of the late days of pneumonia demands equal consideration with vaso-motor paralysis as a factor in the production of circulatory failure. The relative importance of these two conditions may differ in different cases. In one, the vaso-motor paresis, in another, the cardiac asthenia is the dominant factor. The vaso-motor stimulants above noted act directly and indirectly as cardiac stimulants.

In periods of stress when it is necessary to sustain the tired, toxic myocardium, diffusible stimulants will be demanded. Moderated doses, fifteen minims, of aromatic spirits of ammonia, compound spirits of lavender or compound spirits of ether should be given at short intervals every hour, half hour, or more frequently if urgency is great. Here also alcohol has its place. One-half ounce of brandy, or its equivalent in sherry or champagne, every one or two hours during an emergency may hold up a patient for the twenty-four or thirty-six hours necessary for him to struggle through his crisis.

Such a consideration of so many measures is suggestive of polypharmacy. Unable as we are to analyze the factors of circulatory failure in the order of their therapeutic importance, a judicious polypharmacy is justifiable. Action must be rapid, and time is not given clinically to try one remedy after another.

At any period in the course of pneumonia, pulmonary edema with or without right ventricle failure may demand energetic treatment. Digitalis and atropia are indicated.

In conditions of heart dilatation with systemic and pulmonary stasis the question of bleeding may arise. Opportunely performed when the mechanical and not the toxic factor is predominent, blood letting may save life. In my personal experience, however, I have never been fortunate enough to see such a result.

CONVALESCENCE.

A proper appreciation of the damage done to the lung paramchyma by the exudative inflammation and to the cardiovascular system by the pneumonia toxin will guide the physician in the care of the convalescent period.

Rest and quiet until complete restoration of cardiac and vascular integrity are necessary.

A careful dietary, tonics, restricted exercise, and a thoughtful supervision of all the patient's functions and activities will be demanded for a number of days. In conditions of serious cardiac weakness or unusual delay in pulmonary resolution the period of convalescence may demand thoughtful medical care for quite a period.

REFERENCES.

1. Neufeld. *Zeitsch. f. Hyg.*, 1902. XL. 54.
2. Handel. *Zeitsch. f. Immun.*, 1909, III, 159.
3. Alphonse R. Dochez. *Forchheimer's Therapeusis of Internal Diseases.* Vol. V.
4. Rufus Cole. *Forchheimer's Therapeusis of Internal Diseases.* Vol. V.
5. E. C. Rosenow. *Journal of A.M.A.* Sept. 7, 1914. Page 795.
6. Hiss. *Journal of Medical Res.* XIX. 1909.
7. W. G. Galbraith. *Journal of A.M.A.* XLIV, 1905, p. 291.
8. Alex. Petzold. *Deutsches. Archiv. f. klin. Med.*, Bd. 70, Heft 3 and 4, 1901.
9. F. P. Henry. *Phil. Medical Journal*, Feb. 14, 1903.
10. S. Solis Cohen. *American Journal of Medical Sciences.* Jan., 1912.

PLEURITIC EFFUSIONS AND EMPYEMA SUBSEQUENT TO OR CO-INCIDENT WITH PNEUMONIC ATTACKS.

V. C. VAUGHAN, JR. M.D.
DETROIT, MICH.

Pleurisy of some degree is an invariable accompaniment of typical lobar pneumonia. In fact, of the three cardinal symptoms—chill, fever and lancinating pain in the side—the last and most important is due directly to the pleural involvement. From an anatomical standpoint it would indeed be strange if a disease process involving suddenly an entire lobe would not also affect the pleural covering of that lobe at some point. It is only in the atypical central pneumonias or those occurring as apical attacks in the aged or in alcoholics that signs of pleural involvement are frequently wanting.

As has been stated, the characteristic pain occurring at the outset of pneumonia is pleural in type. It is described as sharp lancinating or knife-like and is increased by deep breathing or cough, both of which result in increased pleural excursion. Although the pain is usually referred to the area of pulmonary and pleural involvement it may in rare cases be present on the opposite side. In the very beginning of the attack the dysponea and increased shallow respiratory movements are due more to the attempt on the part of the patient to relieve pleural pain than to deficient aeration through extensive pulmonary involvement. That this is the case is shown by the rapid relief of respiratory embarrassment following the use of anodynes. However, these signs are soon overshadowed completely by the symptoms arising from the increasing pulmonary involvement.

With regard to the degree of pleural inflammation associated with pneumonia and due, primarily at least, to pneumococcus infection, it may be stated that it ranges from a slight

roughening of the pleural surface through the deposit of a small amount of fibrinous exudate to the more or less complete filling of the pleural cavity with purulent material. Ordinarily the pleural involvement associated with the beginning of the disease is of the dry plastic variety and is evidenced clinically only by a transitory friction rub at the site of involvement and the associated pain, the signs of the presence of fluid in the pleural cavity being absent. However, it must be remembered that it requires the presence of at least 400 cubic centimeters of fluid in the pleural cavity before physical signs become manifest, and it is highly probable that there is always a small amount of exudate in the cavity of the involved side. Thus, Maraglinano demonstrated the presence of sero-fibrinous or fibino-purulent exudate in 65.5 per cent. of cases of typical lobar pneumonia in which he employed exploratory puncture without regard to the physical signs. Norris states that pleural effusion was diagnosed clinically in 6.26 per cent. of 24,511 cases and was found at autopsy in 41.58 per cent. in 974 cases. Kerr reported pleurisy present in 69 per cent. of 178 autopsies on cases of pneumonia. In this series, 74 of the pleurisies were classified as fibrinous, 38 as sero-fibrinous and 6 as acute purulent.

With regard to the character of the pleuritic exudate caused by the pneumococcus it is usually fibrinous, sero-fibrinous in which case the amount of fibrin is very abundant or purulent. The clear straw colored serous exudate so characteristic of tuberculous pleurisy rarely if ever results from a pneumococcus infection of the pleural cavity.

DIAGNOSIS OF EFFUSION.

With regard to the diagnosis of coexistent pleural effusion and pneumonia the physical signs are frequently very confusing. Thus, whereas in a typical case of lobar pneumonia we have dullness and harsh bronchial breathing over the affected area with increased vocal fremitus, in the so-called massive pneumonia associated with plugging of the larger bronchi, there is an absence of breath and voice sounds; the physical signs being identical with those due to pleural effusion.

Skodaic resonance may be present both above effusion and above consolidation as well. The whispered pectoriloquy described by Bacelli as well as a peculiar nasal twang to the spoken voice often heard over the clear serous effusions of tuberculous disease is of no value in the case of pneumonic pleurisies, the majority of which when accompanied by much fluid are purulent or at least exceedingly rich in fibrin. Distant tubular breathing may suggest either pulmonary involvement not extending to the surface or interposed fluid. Under these circumstance, however, the results of light percussion should give definite information. Where bronchial breathing at first harsh and sharply defined subsequently becomes muffled and distant without signs indicative of resolution the presence of fluid in the pleural cavity should be suspected, although extension of the disease process to the larger bronchi may also produce the same result. In such cases the use of the exploratory needle is necessary in order to arrive at a diagnosis. Displacement of the heart, liver or spleen is always suggestive of pleural effusion. Roentgenograms should be obtained if possible in all doubtful cases.

Pleuritic involvement associated with pneumonia may conveniently be considered under two heads: 1. Pleurisy coincident with the pneumonic attack, the so-called para-pneumonic pleurisy and, 2. Pleurisy subsequent to the attack the meta-pneumonic pleurisy. By far the great majority of pleurisies belong to the first class. Para-pneumonic pleurisies may be either dry-fibrinous, sero-fibrinous or purulent in type. The prognosis of this class is good, the attacks usually ceasing coincident with the clearing up of the pulmonary condition. This is certainly familiar to all in connection with the plastic variety and Gerhardt has recently reported four cases of suppuration in the pleural cavity occurring early in the febrile stage of the disease without undue aggravation of symptoms, the pneumonia following the usual course. The empyema was, however, slight in extent and no micro-organisms were found in the scanty pus. In a fifth case, avirulent pneumococci were found. Gerhardt thinks that even para-pneumonic empyema tends to spontaneous absorption if slight in extent and probably frequently escapes detection.

Although our knowledge of the mechanism involved in pneumococci immunity is slight, clinical evidence seems to justify the view of the establishment of a temporary immunity associated with and immediately following the crisis in uncomplicated cases. Thus Dochez demonstrated the presence of protective substances in the blood of nine out of ten patients. The time of the appearance of these substances varies, but in seven cases they appeared for the first time or showed marked increase in amount immediately following the crisis. Clough obtained similar results in nine of twelve cases. It is a matter of common knowledge that cases in which a classical crisis occurs are less apt to suffer from subsequent affection of the pleura then are those in which recovery occurs gradually. Pneumococci pleurisies following attacks of pneumonia appear to bear a relation to the original attack similar to that of localized infection of the gall-bladder with the specific organism subsequent to recovery from an attack of typhoid. In both instances

we are dealing with local infection of tissues which for some reason do not partake of the general body immunity.

Meta-pneumonic pleurisies with effusion may become evident either during the decline of the pneumonic attack or after full convalescence has apparently been established. As a rule they are of the suppurative variety, the pus obtained through exploratory puncture being greenish-yellow in color, thick, creamy, homogeneous and usually without odor. The presence of pneumococci can be demonstrated in the purulent material provided the empyema is not of long standing. The pus may be found free in the general pleural cavity or encysted and walled off by adhesions as in the case of the interlobar or diaphragmatic forms of empyema.

As the tubercle bacillus is the chief factor in the development of pleurisy with serous effusion so does the pneumonoccus rank first as a cause of suppurative pleuritis. This is especially true in the case of children where 75 per cent. of all empyemas can be attributed to the pneumococcus as the etiological factor. Fraley reports that fifty-three of ninety-five cases of empyema followed a preceding attack of pneumonia, thirty-five of these following immediately after the original pneumonic attack. As in cholecystitis caused by the typhoid bacillus so in empyema due to the pneumococcus we may have repeated attacks separated by long intervals of time. Thus, Comby has recently reported two cases of empyema in patients aged four and fifteen years respectively in which complete recovery apparently occurred. Two years later both cases developed a pneumococcic empyema in the area previously affected.

SYMPTOMS OF EMPYEMA.

The development of meta-pneumonic empyema is rarely accompanied by the symptoms of acute illness. Its occurrence is particularly difficult to detect when it develops during the recovery from the pneumonic attack by lysis. The fever associated with empyema possesses no definite characteristics. It may be hectic in type and associated with night-sweats, or, there may be no rise of temperature whatever. It is astonishing to note the large collections of pus occasionally found in the pleural cavity associated with no other symptoms than a slight afternoon or evening temperature such as occurs in early tuberculous disease and accompanied by the marked anemia and pallor so characteristic of long standing suppurative processes of low virulence. Pain in the affected side is not frequent and dyspena is rare except in cases of a large amount of effusion. A chill, or more frequently chilly sensations alone, may occur at the outset of the attacks. Recurring leukocytosis after a post-critical fall should always be regarded as very suspicious and should call for careful physical examination with reference to the possible accumulation of pus in some portion of the pleural cavity.

Inter-lobar empyema may give signs suggestive of pulmonary consolidation, delayed resolution or tuberculous infiltration. In such case Roentgenograms are invaluable in arriving at the correct diagnosis.

The physical signs of empyema are those of pleurisy with effusion. Edema of the chest wall so frequently associated with empyema of streptococcic origin rarely occurs in association with pneumonic purulent effusion.

The prognosis of pneumonic empyema is good provided proper surgical measures be employed for the removal of pus. Empyema of long standing may terminate spontaneously by rupture into a bronchus with the expectoration of the purulent material or by external rupture between the ribs.

Concerning the treatment of pneumonic pleurisy but little can be said in a medical way. The dry plastic pleurisy associated with the commencement of the pneumonic attack may be relieved by the proper strapping of the affected side with adhesive plaster—the resulting limitation of motion frequently affording the patient great relief from pain and tending to keep the inflammed pleural surface at rest. The application of an ice bag to the chest wall over the inflammed pleura appears to be of benefit in some cases. Meta-pneumonic empyema may occasionally fail to recur after thorough aspiration of the purulent material. However, the tendency of such empyemas to remain latent over considerable periods of time would justify early surgical intervention with the establishment of free drainage.

PNEUMONIA MORTALITY AND PREVENTION.

JOHN L. BURKHART, M.B., M.D.
LANSING, MICH.
Secretary State Board of Health.

With the coming of the cold weather we must expect the advent of Michigan's greatest destroyer of life, pneumonia, hence a few pertinent facts are submitted for the information of the public and consideration of the physicians.

Averaging the mortality statistics of Michigan, collected under the new law, for the fourteen years, 1898 to 1911, the order of importance of the most dangerous communicable diseases, as causes of death, was as follows: Tuberculosis, Pneumonia, Typhoid Fever, Meningitis, Diphtheria, Whooping Cough, Scarlet Fever, Measles and Smallpox. The statistics of 1913, not yet made public, will show pneumonia first, tuberculosis, second. The very active campaign

instituted by the State Board of Health and the various Anti-Tuberculosis societies, throughout the state has reduced the death rate in pulmonary tuberculosis nearly 9 per cent. within the past five years, but pneumonia has increased, as will be seen by the following table:

PNEUMONIA.

Year	Population	Cases	Deaths	Death Rate Per 100,000 Population
1908	2,639.050	3,177	2,502	87.7
1909	2,666,309	3,142	2,563	85.0
1910	2,810,173	3,671	3,016	99.1
1911	2,856,866	3,452	2,887	96.7
1912	2,903,559	3,592	2,654	91.4
Five Year Average	2,775,191	3,407	2.724	92.0
1913	2,950,251	3,681	2,912	98.7

Some allowance must be made for increase in population, but with this deducted, the fact that pneumonia is carrying off more of our people than any other disease remains. Some very interesting comparisons are furnished by computations going on in this office, but they are too extensive to admit publication in a brief article.

The vigorous attitude assumed by the State Board, within the past five years, towards collecting morbidity reports, has brought to light an increased number of cases of tuberculosis, the total number for 1913, being 6,772, as against 3,681 pneumonias. The death rate from pulmonary forms of tuberculosis for 1913 is 71.7 per 100,000 population, while in pneumonia it is 98.7 per 100,000 population.

Season and age plays a very prominent part as follows:

Seasonal prevalence shows greatest number in February and March and smallest number in July and August.

AGE.

In 1912, at all ages, death rate was 98.5 per 100,000 population.

In 1912, under one year, death rate was 1073.1 per 100,000 population.

Lowest death rate is found between 10 and 14 years of age, being 14.4 per 100,000 population. Death rate remained below normal at all ages, until the 55th year, when it increased to 101.0 per 100,000. At the 80th year, the death rate was 888.2 per 100,000 population of those living at that age.

CAUSE.

Pneumonia is a communicable disease, caused by a specific micro-organism, commonly the micrococus pneumonia, which produces a potent poison, very dangerous to life, particularly during the periods of infancy and old age.

MODES OF COMMUNICATION.

The pneumococcus leave the body by the mouth and nose and enters the system through the same channels.

PREVENTION.

The Virulence of the Germ.—The virulence of the germ of pneumonia is subject to wide variations. In the bacteriological laboratory there are cultures, one-millionth of a cubic centimeter of which will induce death in animals, while there are other cultures twenty times the above given amount of which are necessary to produce the same effect. As a rule, the virulence is increased when the germ passes directly from one person or one animal to another. This is one of the reasons why the disinfection of the sputum of the person suffering from pneumonia is so desirable.

How the Sputa Should be Destroyed.—During the illness great care should be taken to prevent soiling bed clothing, carpets, or furniture with the sputa. The patient should cough into moistened cloth and the cloth should be burned before allowing it to become dry. It is not a sufficient precaution to exercise this care during the patient's brief illness, because the germs causing pneumonia are capable of living for a considerable time, in the mouth and nose of a person who has had the disease. Therefore, during convalescence, so long as any sputum is raised from the lungs, and for at least two or three weeks, all expectoration should be into a cup or cuspidor containing a disinfectant, the best disinfectant being a 5 per cent. solution of carbolic acid (six and three-fourth ounces of carbolic acid to one gallon of water). If not confined to the house, it is best that the convalescent, and that all persons who have a cough should carry small pieces of cloth (each just large enough to properly receive one sputum) and paraffined paper envelopes or wrappers in which the cloth, as soon as once used, may be put and securely enclosed, and, with the envelope, burned at the first opportunity. Remember that the sputum must not be allowed to become dry.

The Spitting Nuisance Dangerous to the Public Health.—It is now well known that the human saliva is the natural habitat of many species of microörganisms which gain access to the mouth in various ways, the most common being by breathing, through the mouth, air containing them. In a case of pneumonia, however, the germs of the disease are coughed up from the lungs. The sputum is, therefore, the common way by which pneumonia and some other dangerous communicable diseases are spread. After drying, the germs with which the sputum is charged mingle with the dust of rooms in homes, churches, schools, public halls, stores and

cars. In these places they are inhaled by human beings, with results dependent largely upon physical and meteorological conditions. The physical and meteorological conditions cannot always be avoided, therefore success in the restriction of those diseases must lie in the direction of the destruction of the germs which produce those diseases. It is probable that could the sputum always be destroyed as soon as ejected, pneumonia and a few other important diseases would soon disappear. We are confronted with the practical problem of how this may be done, either wholly or in a large degree. This problem is not an easy one to solve, for the reason that every man regards himself as independent and endowed with the inalienable right enjoyed by man throughout all ages, of depositing saliva wherever he chooses. Many municipalities are endeavoring to enforce regulations more or less stringent to prohibit spitting upon sidewalks and in other public places. These efforts are largely due to the knowledge now becoming so common that the germs of tuberculosis are spread by the air containing the germs of this disease which have been ejected in the sputum of the victims of the disease. When it becomes generally understood that sputum may contain not only germs of tuberculosis, but also the germs of pneumonia and of other dangerous communicable diseases, the efforts that are now being put forth to prohibit this public and dangerous nuisance should be largely increased.

Legal measures can be used only against the person spitting in public places. The person who contaminates the air of his home with his saliva is largely beyond the reach of such measures. Public opinion is necessary to sustain the enforcement of any law. It is especially necessary where it is sought to enforce a law depriving citizens of a privilege they have long enjoyed and can see no reason why they should not continue to possess. Education of the people concerning the importance of destroying or disinfecting all sputum must, therefore, precede forcible measures. This education should be such as to induce every intelligent person to destroy or disinfect the sputum or saliva he or she ejects, and to insist that the careless and the ignorant be compelled to do likewise. It is to be hoped that such education will result in the formation of public opinion so that it will demand that the law shall not only reach the public spitter, but that it will also apply to the person who contaminates his own home, thus not only endangering his own family, but also endangering the lives of all who may enter such a home. The press, the teachers in our public schools, the preachers in our pulpits, and all others who in any degree mould public opinion should urge this most important sanitary reform.

Isolation of the Patients.—It is believed that, if care is taken with all the discharges from the nose and mouth, by disinfecting or burning, and if the clothing, bedding, drinking cups and other utensils which are used by the patient are treated in the same manner, the danger of communicating the disease will be reduced to a minimum and the necessity for terminal fumigation eliminated. Unfortunately, these precautions are not exercised in the majority of cases; hence the necessity for submitting the room and contents to disinfection, by means of formaldehyde gas, after the patient has recovered or died.

Isolation of the patient is always necessary; is required by this Board and forms one of the surest methods of preventing the spread of the disease. Contact infection, in nearly all the communicable diseases, is now recognized to be one of the most common elements in the spread of disease. Children, in particular, should not be permitted to enter the room where a patient is sick with pneumonia, and all others, except those in attendance upon the patient, should be warned against the danger of entering the room. *Isolation* and *quarantine* must not be confounded. The former confines the patient, and immediate attendants, to the sick room and does not prohibit the other members of the family from pursuing their ordinary duties, nor are children from a household where pneumonia exists excluded from attendance at school. Quarantine is not required in pneumonia cases: placarding of the house and isolation of patient are the requisites.

Ventilation of Buildings.—Through better systems of ventilation, much may be done for lessening the number of microörganisms inhaled with the dust of floors, carpets, etc., especially by having the foul air exits at the floor level, so that the general motion of the foul air shall be downward and not upward into the nostrils of the inmates of the room. This is especially important with reference to all public buildings, as, also, that they shall constantly have a liberal supply of fresh air.

Personal Precautions.—Any person dusting objects in a room, cleansing the floors, walls or ceiling of the living or sleeping room of a person suffering with pneumonia might well use a respirator. Several folds of gauze moistened and tied loosely over the nose and mouth might be used. The sweeping and dusting of a room which has recently been occupied by a person sick with pneumonia should be deferred until after the room and contents have been subjected to proper airing and disinfection.

No one should sleep in the same room with a patient, nor in a room which has been recently occupied by a person sick with pneumonia, unless the room (with all its contents) has been previously thoroughly aired or disinfected.

It is best not to stand near a person who is

coughing, because in coughing finely divided droplets of saliva are thrown from the mouth and may be carried for a distance of three feet. These droplets may contain large numbers of germs. They are also sometimes thrown out in forcible speaking. The ordinary breath does not contain them.

Much may be done to lessen the liability to contract pneumonia, by having the sanitary surroundings as nearly perfect as possible, and by keeping the lungs strong and healthy. These facts emphasize the importance of pure food, pure air, and healthful exercise.

Exposure to Cold Wind Should be Avoided.—Statistics of sickness and of deaths, collated with meteorological statistics, prove that the colder months of the year and those following are the months during which pneumonia prevails most extensively, and during which it sometimes assumes an epidemic form. At such times every person should avoid exposure to cold wind and to chill from a change from heavy to light clothing.

SANITARY CARE OF SICK PERSONS AND ROOMS.

The room in which one sick with this disease is to be placed should previously be cleared of all needless clothing, drapery, and other materials likely to harbor the germs of the disease; and, except after thorough disinfection, nothing already exposed to the contagium of the disease should be moved from the room. The sick room should have only such articles as are indispensable to the well-being of the patient, and should have no carpet, or only pieces which can afterwards be destroyed or disinfected. Provision should be made for the introduction of a liberal supply of fresh air and the continual change of the air in the room without sensible currents or drafts.

Handkerchiefs that need to be saved, should not be used by the patient; small pieces of rag should be substituted therefor, and after being used once should be immediately burned.

Soiled clothing, towels, bed-linen, etc., on removal from the patient, should not be carried about while dry; but should be placed in a pail or tub and covered with a 5 per cent. solution of carbolic acid (six and three-fourths ounces of carbolic acid to one gallon of water). Soiled clothing should, in all cases, be disinfected before sending away to a laundry, either by boiling for at least half an hour, or by soaking in the 5 per cent. solution of carbolic acid.

The discharges from the throat and mouth of the patient should be received into vessels containing an equal volume of a 5 per cent. solution of carbolic acid, and in cities where sewers are used, thrown into the water closet; elsewhere the same should be buried at least 100 feet distant from any well, and should not by any means be thrown into a running stream, nor into a cesspool or privy, except after having been thoroughly disinfected. Discharges from the nose may be received on old cloths, which should be immediately burned. All vessels should be kept scrupulously clean and disinfected.

All cups, glasses, spoons, etc., used in the sick room, should at once, on removal from the room, be washed in the 5 per cent. solution of carbolic acid and afterwards in hot water, before being used by any other person.

MENDELISM AND ITS MEANING.*

PROF. LEROY H. HARVEY.

KALAMAZOO, MICH.
Western State Normal School.

Heredity is an universal and fundamental biological principle determining the general resemblance of offspring to parent. Variation, natural elimination and heredity constitute the Trinity of Biogenisis, in other words, they are the underlying causal factors of evolution. So totally inclusive is the domination of heredity that when we attempt to analyze its *modus operandi* in any specific case our knowledge serves to lead us scarcely to the border of a great *terra incognita.* However, we need not wail the battle-cry of the agnostic! Sometime, and I believe soon, the pioneers of biological science will traverse this unknown world and formulate it in language so clear, so plain, that "he who runs may read." We can! We must know! Who of us dare set limitations to the capacities of the human mind?

Inheritance, on the other hand, is the phenomenon of the transmission of specific characters. Here, we are on safer ground, yet at once find ourselves in the vortex of profoundest biological research. The biologist no longer views the individual as a whole, as a blend, but on the contrary as an aggregate of distinct characters. These constitutional entities are designated "unit characters." What the atom is to the chemist, the molecule to the physicist, the unit character is to the biologist; and just as the atom and molecule are distinct, so we find no transitions between unit characters. They are specific and independent entities. These qualitative entities are however subject to quantitative variation but always within determinate limits. They are thus potentially immortal. Under the influence of unknown environic forces and at rare intervals certain unit characters may however become mutable and suffer mutational change thus producing new unit characters and contributing new materials to the process of evolution.

This conception of the organism as a complex of unit characters and individuality as the

*Read before the Section on Medicine, M.S.M.S. 49th Annual Meeting, Lansing, Sept. 4-5, 1914.

expression of a particular aggregation of such characters forms perhaps one of the most fundamental postulates in the realm of philiosophical biology, as out of it has come our most recent theory of evolution and upon it firmly rests the laws of plant and animal breeding and the science of eugenics. Recognition of the far reaching significance that organisms are a consequence of genetic processes and that their powers and faculties are fixed in their physiological origin is recent even among biologists. The laity, with few exceptions, are shrouded in medieval superstition. "Historians debate the past of the human species, and statesman order its future as if the animal man, the unit of their calculations, with his vast diversity of powers, were a homogeneous material, which can be multiplied like shot." The sociologist with sincerity propounds solutions for the present and future ills of society and the field of education is perenially green with pedagogical theory and practice. Man may propose but natural law continues to dispose. The profession of medicine is not wholly free from censor in its practice and ethics. In its zealous effort to save life it has contributed is no small measure to racial decline. Let us not blind ourselves with our humanitarianism. A decreasing infant mortality and an increasing longeivity is no index of racial advancement. "The reason for this neglect lies in ignorance and misunderstanding of the nature of variation; for not until the fact of congenital diversity is grasped, with all that it imports, does knowledge of the system of hereditary transmission stand out as a primary necessity in the construction of any theory of evolution, or any scheme of human polity."

Unit characters are the materials of inheritance and the students of heredity are striving to analyze organisms and segregate desirable unit characters to the end of synthesizing them in a next generation to the esthetic, economic and social welfare of mankind. Scientific breeding has thus become at will a process of analysis by which we may judge the number and nature of unit characters composing an individual or of synthesis by which we may create new individuals with the desired unit characters. These facts thus obtained furnish a series of biological reactions, revealing the constitution of living things. The constitution of an organism is the key to its behavior, its potentialities and its limitations, to what it may become and what it may produce. Such biological analysis, especially in the case of man, will be long and tedious. But when we view the imposing superstructure of chemistry reared in scarce a century upon the concept of the indestructible atom and note the far reaching application of Mendelism made in the last decade we feel confident that, though the time element will be longer, the result to society will be a no less imposing science resting firmly upon this conception of organic constitution.

To the masterful mind and marvelous researches of the Austrian monk, Gregor Johann Mendel, (Figure 1) do we owe

Fig. 1. Gregor Johann Mendel about the year 1862 (1822-1884).

this modern conception of unit characters. His essay "Experiments in Plant Hybridization" which was presented in 1865 before the Natural History Society of Brünn marks a great biological epoch. Preceded by marvelous clarity in analysis of the problems involved and much preliminary experimentation he finally selected *Pisum sativum* and seven pairs of characters. (Fig. 2). After eight years of arduous labor

PAIRS OF UNIT CHARACTERS
PISUM SATIVUM - MENDEL.

1. **ROUND or angular seed**
2. **YELLOW or green cotyledons.**
3. **GREY or white seed coat.**
4. **INFLATED or wrinkled seed pods.**
5. **GREEN or yellow unripe pods.**
6. **AXIAL or terminal flowers.**
7. **TALL or dwarf stems.**

Fig. 2. Pairs of unit characters used by Mendel in his epochal experiments in plant hybridization.

his results were presented in the above thesis, which for clarity, logical development and expository skill has scarce been equalled.

"The Origin of Species" six years previous (1859) had as if by magic captured the in-

terest and focused the activity of the biological world along lines which held promise of far greater productivity than the tedious labor of experimentation in plant and animal breeding. As a consequence Mendel's work sunk into oblivion. The one man, Nageli, who might have interpreted his results to the world failed entirely to appreciate their far reaching sig-

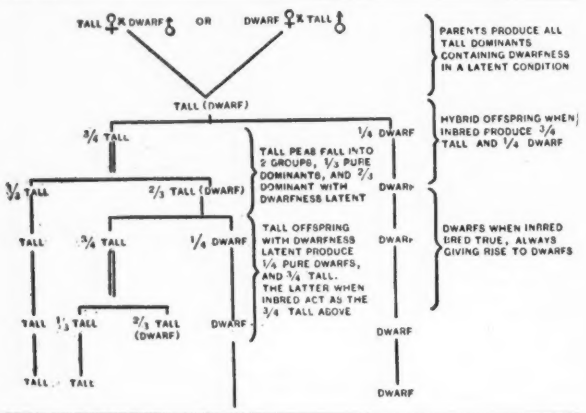
TALL ♀ × DWARF ♂ OR DWARF ♀ × TALL ♂
PARENTS PRODUCE ALL TALL DOMINANTS CONTAINING DWARFNESS IN A LATENT CONDITION
TALL (DWARF)
HYBRID OFFSPRING WHEN INBRED PRODUCE ¾ TALL AND ¼ DWARF
¾ TALL
¼ DWARF
TALL PEAS FALL INTO 2 GROUPS, ⅓ PURE DOMINANTS, AND ⅔ DOMINANT WITH DWARFNESS LATENT
⅓ TALL
⅔ TALL (DWARF)
DWARF
TALL OFFSPRING WITH DWARFNESS LATENT PRODUCE ¼ PURE DWARFS, AND ¾ TALL. THE LATTER WHEN INBRED ACT AS THE ¾ TALL ABOVE
DWARFS WHEN INBRED BRED TRUE, ALWAYS GIVING RISE TO DWARFS
TALL
¾ TALL
¼ DWARF
TALL
⅓ TALL
⅔ TALL (DWARF)
DWARF
TALL
TALL
DWARF
DWARF

Fig. 3. Diagram showing the inheritance of tallness and dwarfness in peas according to Mendel's Law. (From Hegner after Thompson).

nificance. It was only after thirty-five years that the simultaneous rediscovery (1900) by De Vries, Correns and Tschermak of the same law that Mendel's work came to light and to its merited recognition.

I may now illustrate the Mendelian Law by the analysis of a specific case. If we cross a pure tall pea with a pure dwarf pea (Fig. 3) (and it matters not which way we make the cross) the offspring will all be tall. Now if we cross two individuals of this F^1 generation the F^2 generation yields a result unexpected for

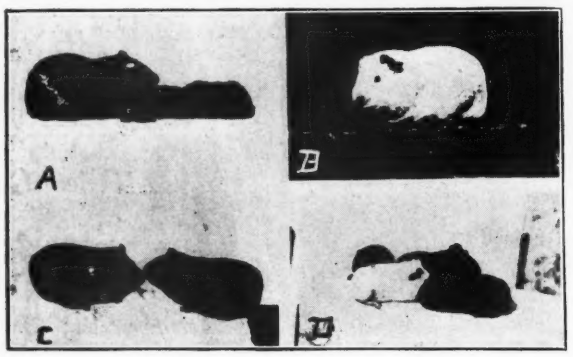

Fig. 4. (a) A pure black female guinea-pig and her young.
(b) A pure albino male guinea-pig.
(c) Two mature young of a pure black with a pure albino guinea-pig.
(d) A group of four young produced by animals shown in (c). (After Castle).

it consists of both tall and dwarf offspring and in a ratio of 3:1. If the dwarfs of the F^2 generation are now inbred the result is dwarf offspring and so on generation after generation. In other words the dwarfs in the F^2 generation were pure like the dwarf grandparent. If the 75 per cent. of tall peas in the F^2 generation are now inbred they resolve into two kinds of plants; one third are found to be pure tall like the other grandparent while the other two-thirds are found to yield in the F^3 generation 75 per cent. tall and 25 per cent. dwarf; in other words they are hybrid like the F^1 generation. It is thus obvious that the F^2 generation is to be correctly symbolized by the ratio 1:2:1 in which 25 per cent. are pure tall like one grandparent, 25 per cent. pure dwarf like the other grand parent and 50 per cent. are hybrids. This is the famous Mendelian ratio.

This law can again be illustrated by crossing pure black and pure albino guinea pigs. (Fig. 4). The F^1 generation is black. Thus blackness is dominant and whiteness recessive. The F^2 generation resulting from inbred F^1 individuals consist of 75 per cent. black and 25 per cent. white guinea pigs. Inbreeding of the F^2 individuals shows the composition of this generation to be 25 per cent. pure black, 50 per cent. hybrid black and 25 per cent. pure white and so conforms to the Mendelian ratio of 1:2:1.

Case	One Parent	Other Parent	Offspring	Characteristics of Offspring
1	PP	PP	PP,PP	All with pigmented iris(brown-eyed)
2	PP	Pp	PP,Pp	All pigmented,but half simplex.
3	PP	pp	Pp,Pp	all pigmented and all simplex.
4	Pp	Pp	PP,Pp,pP,pp	¼ duplex pigmented; ½ simplex;¼ unpigmented(blue-eyed
5	Pp	pp	Pp,pp	½ simplex;½ unpigmented (blue-eyed)
6	pp	pp	pp.pp	All unpigmented (blue-eyed)

Fig. 5. Inheritance of brown and blue eyes in man. PP idicates homozygous brown eey; pp homozygous blue eye; Pp heterozygous brown eye. (After Davenport).

One other example must suffice, though hundreds might be submitted, and I take this from Hursts' study of the heredity of eye-color in man (Fig. 5). Brown eye is dominant over blue eye so that if we cross a pure brown eyed individual with a pure blue eyed individual the children will all have brown eyes, but hybrid in nature. If individuals both with hybrid brown eyes marry then the children will exhibit eyes of three types: pure brown like one grandparent; hybrid brown like the parents and pure blue like the other grandparent and if a sufficient number of cases are collected they will be found to occur in the ratio of 1:2:1 as can be readily seen from a study of cases number three and four in figure five.

The above schematic table (Fig. 5) will also serve to make clear what is embraced in the terms "pure" and "impure." If the offspring receive two doses of the same unit character, one from each parent, as in cases one and six it is

said to be duplex or homozygous, i. e., pure as regards this specific character. If on the other hand, the offspring receives any unit character in a single dose, i. e. from only one parent; as in case three, the F^1 generation is said to be in respect to this particular character simplex or heterozygous (impure, hybrid). Consequently long lineage is in no sense an earnest of purity of breed. Since purity of breed as regards any unit character (the term is meaningless in any other application) is a question of gametic constitution one generation suffices as well as a hundred to bring this to pass, a fact unknown to the majority of breeders who still labor under the superstition that length of pedigree is a guarantee of purity. Obviously this misconception rests upon ignorance of unit characters and gametic segregation.

With these facts now before us we may proceed to the consideration of the hypothesis of their interpretation (Fig. 6). It is already established in the case of the guinea pig that blackness and whiteness are designated unit characters and that they are alternative to each other hence constitute an alellomorphic pair. It is also clear that in the F^1 generation that blackness masks whiteness whence the former is designated dominant and the latter recessive. The integrity of the recessive unit character is established by its extraction in pure form in the F^2 generation as it is clearly shown in the above scheme (Fig. 6). Parenthetically it may be stated that dominance though usually manifest, is in no respect an essential feature of Mendelism.

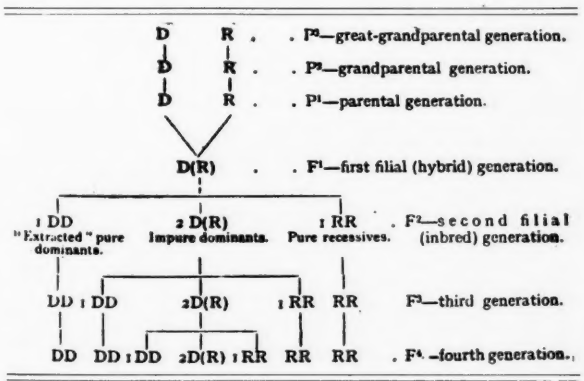
D R . . P³—great-grandparental generation.
D R . . P²—grandparental generation.
D R . . P¹—parental generation.
D(R) . . F¹—first filial (hybrid) generation.
1 DD "Extracted" pure dominants.
2 D(R) Impure dominants.
1 RR Pure recessives.
. F²—second filial (inbred) generation.
DD 1 DD 2D(R) 1 RR RR F³—third generation.
DD DD 1 DD 2D(R) 1 RR RR RR . F⁴—fourth generation.

Fig. 6. Theoretical interpretation of Mendel's Law. (After Thompson).

To account for the behavior of these unit characters in inheritance Mendel postulated that each was represented in the gametes by some minute body which we now designate a determiner or genetic factor (Fig. 7). To explain the F^1 generation it is only necessary to assume the meeting of the genetic factors of blackness and whiteness in fertilization and the dominance of the former. The F^2 generation however presents a more intricate problem. To meet this Mendel assumed that the determinants of the two members of an alellomorphic pair can never exist in the same gamete at the same time, that is, the gametes are always pure as regards the members of an alellomorphic pair. Each gamete will contain one or the other but never both. But the zygote in each case would contain both, so there must be at gametogenesis a segregation of the determinants resulting in pure gametes of each kind and produced in equal numbers in each sex. To state this in Mendalian phraseology: the male and female

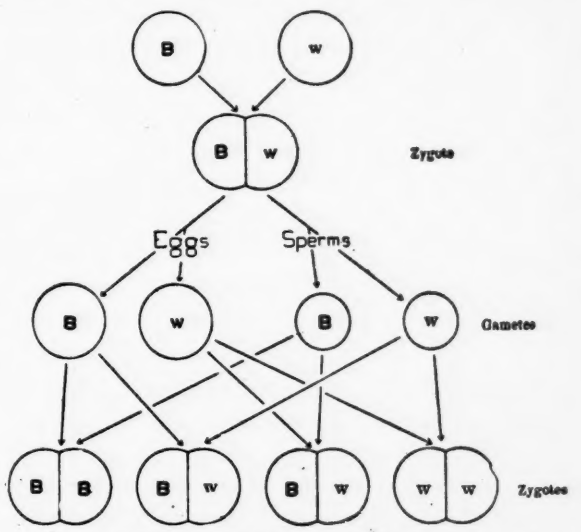

Fig. 7. Diagram to explain the results shown in Fig. 4. B represents the genetic factor blackness, W the genetic factor whiteness. (After Castle).

would each produce an equal number of gametes one half of which in each sex would bear the dominant determinant the other half the recessive determinant. This conception of gametic segregation is the fundamental fact of Mendelism. When one pauses to recall that nothing of cell cytology was known in 1865 the genius of this hypothesis seems scarcely short of divine inspiration. It is now obvious that in panmixis (fertilization) with random fusion of gametes in sufficient number that the ratio of 1:2:1 must follow in the F^2 generation according to the law of combinations.

While the triple rediscovery of the Mendelian rato was announced in 1900 much cytological knowledge was at hand. The behavior of chromosomes in cell mitosis, spermatogenesis and fertilization were well understood and the Mendelian hypothesis was given the severe test of cytology with absolute substantiation at all points. The following series of slides will serve to make clear the cytological basis of Mendel's hypothesis.

May I first briefly recall to mind the process of mitosis as it occurs in the soma (Fig. 8). Within each neucleus is found a granular substance, *chromatin,* distributed over a net-work or reticulum. As each somatic cell approaches division these chromatin granules become arranged in a long thread or spirem. Shortly this

spirem undergoes a definite number of transverse divisions (specific with each species) producing a fixed number of *chromosomes* which

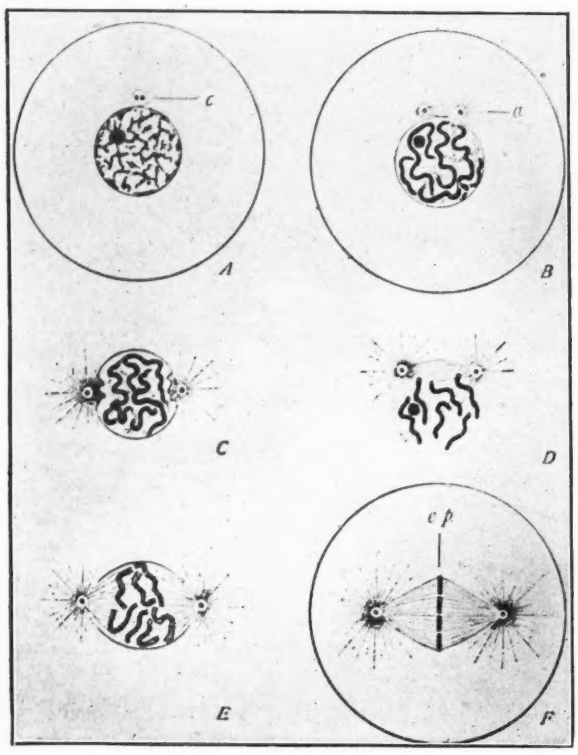

Fig. 8. Diagram showing early stages of mitosis in soma. A. Neucleus showing chromatin on reticulum. B. The spirem. C. Later stage of spirem. D. Chromosomes. E. Later stage of D. F. Chromosomes aranged at equatorial plate of spindle. (After Wilson).

become arranged in an equatorial plate on the spindle fibers and here suffer (Fig. 9) longitudinal equipartition. The spindle fibers shorten pulling these daughter chromosomes poleward where they join end to end breaking up into a granular reticulum in the daughter neuclei. It is evident that each of these must possess approximately one-half the neuclear substance of the mother neucleus.

The pertinent features of this process may be summarized: (1) The fixed specific number of chromosomes; (2) Mitosis characterizes all divisions from fertilized egg (zygote) to maturation divisions in gametogenesis; (3) Chromosomes constitute the physical basis of inheritance, i. e., they constitute the mechanism of transfer of the genetic factors; (4) Equivalent distribution of chromatin into the daughter neuclei in mitosis; (5) The spirem can be demonstrated to consist of two parallel threads, one paternal, the other maternal in origin which are separated by the longitudinal division of chromosomes at the equatorial plate in mitosis. This leads to the conception of the integrity of paternal and maternal chromosomes throughout somatic mitosis.

We may now consider gametogenesis as shown in *Ascaris* (Fig. 10). Early in any ontogeny the germplasm is isolated from the somatoplasm constituting the primordial germ cells. By mitosis these multiply forming the gametogonia. Certain of these gametogonial cells undergo a period of growth forming the primary gametocytes. To this point all mitoses have been typical showing the somatic number of chromosomes which is four in *Ascaris*.

When the primary spermatocyte prepares for division the process is radically different. The four chromosomes become organized into two tetrads which come to lie in the equatorial plate. These now separate into two dyads which move to the poles. A wall comes in and we have the two secondary spermatocytes. These at once divide simultatneously in which process the two dyads in each separate into two monads and with the appearance of dividing walls four spermatids, each possessing two chromosomes, are formed. Each later produce a single spermatozoön carrying the reduced number (2) of chromosomes.

The process is essentially the same in oögenesis (Fig. 11) except that each primary oöcyte results in only a single functional egg. The other three potential eggs are eliminated as polar bodies in the two maturation divisions, sacrificed to the nutritional interest of the successful ovum.

Beside reduction of chromosomes these two maturation divisions accomplish another phenomenon, objective in our discussion. The primary gametocytes carry both genetic factors of an alellomorphic pair, one paternal, the other maternal in origin. The first division of gameto-

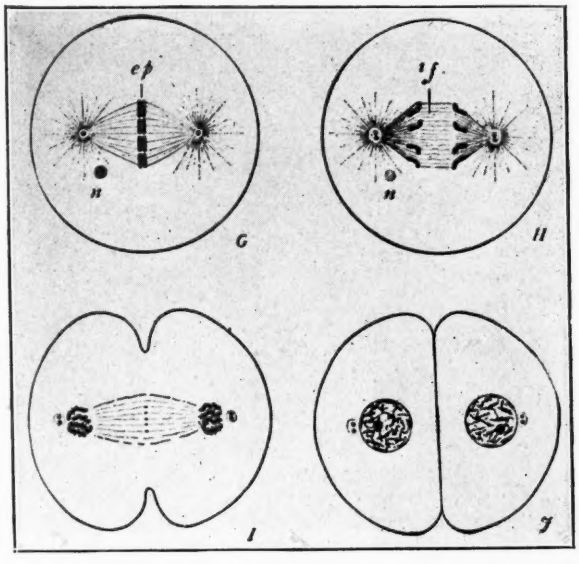

Fig. 9. Diagram showing late stages of mitosis in the soma. G. Longitudinal equipartition of chromosomes. H. Chromosomes traveling poleward. I. Chromosomes joining end to end. J. Chromatin in reticulum of the two daughter neuclei and formation of two daughter cells. (After Wilson).

genesis (primary gametocyte) accomplishes alellomorphic segregation, i. e., separation of the genetic factors of any pair so that only a single factor passes into each of the secondary gameto-

cytes. The subsequent simultaneous division of the two secondary gametocytes, in so far as the genetic factors are concerned is simply a distributional division. Thus half of the gametes in each sex carry the dominant and the other half the recessive genetic factor.

In fertilization the result depends directly upon which gametes fuse. Four possibilities in nature are evident as shown in scheme below (Fig. 12). D x D gives a homozygote (D D), R x R likewise a homozygote (R R) while D x R and R x D give a heterozygote (D R) which inbred in the F^2 generation in sufficient number will throw the Mendelian ratio (1:2:1). Thus the law of Mendel is seen to rest upon the cytology of gametogenesis, the essential feature of which is the alellomorphic segregation resulting in a purity of gametes.

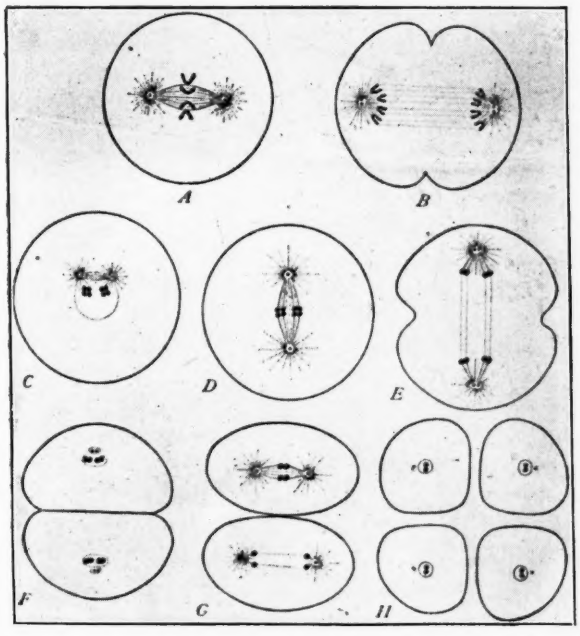

Fig. 10. Diagran showing essential facts of gametogenesis in male. The somatic number of chromosomes is represented as four. A. A spermagonial cell. B. Mitosis of same. C. Primary spermatocyte preparing for division; chromatin forms two tetrads. D and F Division of C to form two secondary spermatocytes; this division also accomplishes segregation of the genetic factors of all alellomorphic pairs. G. H. Division of two secondary spermatocytes resulting in the reduced or germinal number of chromosomes. (After Wilson).

The facts of gametogenesis and fertilization which are pertinent to our thesis may be summarized as follows: (1) At gametogenesis two phenomena are accomplished (a) Reduction of chromosomes from somatic number (2x) to the germinal number (x), (b) Segregation of paternal and maternal chromosomes hence of the genetic factors which they carry.

(2) Each gamete carries but one determinant of an alellomorphic pair, i. e., gametes are pure as regards genetic factors.

(3) Gametes carrying either the dominant or recessive factor are produced in equal numbers in each sex.

(4) Fertilization restores the somatic (2x) number of chromosomes, one half being paternal, the other half maternal in origin.

(5) The nature of the zygote swings with the character of the gametes fusing to produce

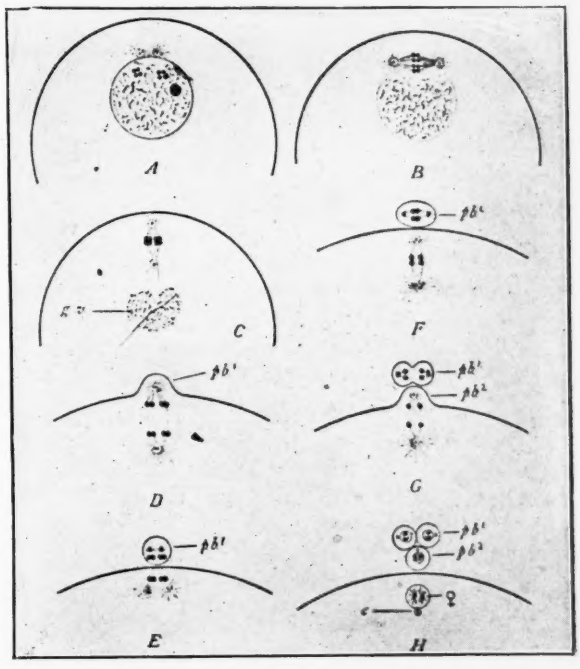

Fig. 11. Diagram showing essential factor of oögenesis. The somatic number of chromosomes is represented as four. A. Primary oöcyte preparing for division, the chromatin has formed two tetrads. B, C, D, E. Division of primary oöcyte to form the two secondary cöcytes, one of which is excluded as the first polar body. F. G. Division of secondary oöcyte and first polar body resulting in the expulsion from the egg of the second polar body. H. The single functional egg and three polar bodies with the reduced number (2) of chromsomes. (After Wilson).

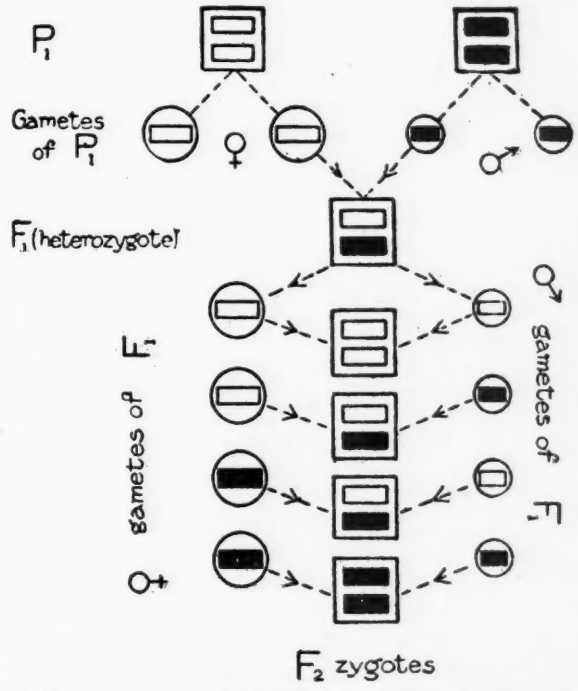

Fig. 12. Diagram illustrating segregation of genetic factors at gametogenesis in the F1 generation and their possible combinations in the F2 zygotes according to the law of combinations. Mendel's law rests upon this phenomenon of segregation of genetic factors at gametogenesis. (After Punnett).

it, resulting either in a homozygous dominant (D D), a homozygous recessive (R R) or a heterozygote (D R).

(6) Heterozygotes inbred will, according to the law of combinations, throw the Mendelian ration of 1:2:1.

The fundamental significance of gametic segregation in plant and animal breeding has, I trust, been made clear. We might suspect that in this respect man holds no unique position and accumulating evidence gratifyingly and completely substantiates our anticipations. If Mendelism means anything, it calls in no uncertain manner for application of its principles by those who are devoting their lives to social service, who desire not "promiscuously to swim down the turbid stream and make up the grand confusion," but rather to aid the soul of man on its lone way.

Just as a farmer by tillage makes a better seed bed, so education, hygiene and sanitation, have made better the conditions under which we live. Unquestionably, education has bettered if not entirely made our environment what it is. By better culture the farmer may make the dwarf pea slightly less dwarf but to hope to ever educate a dwarf pea into a tall pea is absolutely futile. The social worker must face these facts. Do our present efforts in this direction hold out any promise of permanent advance? Are we not trying to elevate the race by endeavoring to lift and perpetuate the unfit. Mendelism answers that our present efforts are but mere palliatives; that our feelings are but temporizing with the facts; that we labor under a misconception of the nature of the organism. Eugenics offers the only avenue of permanent racial advancement. "Education is to man what manure is to the dwarf pea." The educated are in themselves the better for it. We are proud and rightly so of our institutions of learning, or reform, of detention and of moral uplift. Yet, the conspicious efficiency with which these social agencies have functionated and should continue to function for human betterment should not bias our judgment. The fact remains that all these forces will not alter one iota the irrevocable nature of the succeeding generation. The progeny of dwarf peas will forever be dwarf peas. Permanent progress is a matter of ancestry not of education, of eugenics not of euthenics; it is a consequence of gametic nature and not of environmental influence. We must ever hold to the front that individuals have their origin in a physiological process. The outcome of this process hinges absolutely upon the gametic constitution. The zygote is an aggregate of unit characters which in the ontogenesis of that individual are absolutely removed from any possibility of qualitative variation through the operation of environic forces. Conception irrevocably and unalterably casts the die. Education and environment can only serve to induce quantitative manifestations of qualities and powers fixed at gametic fusion. Mendelism marks the dawning of a new and a rational sociology.

PROPAGANDA FOR REFORM.

Serobacterins.—While objection may be made to the sensitized living bacteria used by Besredka because there is always an uncertainty as to the action of living bacteria in the animal body, such danger cannot be attributed to the "serobacterins" because they contain dead bacteria, and so far as known, can do no more harm than other dead bacteria—in fact it is claimed that they are preferable to other vaccines because the toxic products of the bacteria, other than the immunizing properties, have been largely removed. It must be said, however, that these preparations are still in the experimental stage. In great part, careful clinical observations will decide vaccines (*Jour. A.M.A.*, Oct. 3, 1914, p. 1223).

Lactic Acid Ferments.—There is a large amount of literature to the effect that the *Bacillus bulgaricus* hinders putrefaction in the intestinal canal. While there may be some question as to a greater success in securing the implantation of this bacillus by administering it in "liquid cultures" the report of the Council on Pharmacy and Chemistry shows that such a culture is likely to reach the consumer in a more active state than one in the form of tablets (*Jour. A.M.A.*, Oct. 3, 1914, p. 1223).

Glycothymoline Refused Recognition.—A report of the Council on Pharmacy and Chemistry cites Glycothymoline as a typical illustration of a "patent medicine" advertised to the public through the doctor. Different formulas have been ascribed to Glycothymoline by its promotors from time to time, but whatever the exact composition of this secret nostrum may be, it has been definitely shown that it is but a weak antiseptic solution. Nevertheless, the advertising circulars recommend the use of Glycothymoline in such serious conditions as diphtheria and ophthalmia of the newborn. Glycothymoline is in conflict with Rules 1 and 4 of the Council on Pharmacy and Chemistry, because of its indefinite composition and the method of advertising it to the public. It is in conflict with Rules 10, 6 and 8, in that it is an unscientific, shot-gun mixture sold under unwarranted therapeutic claims and under a misleading name (*Jour. A.M.A.*, Oct. 10, 1914, p. 1313).

Declared Misbranded.—The Federal authorities have secured convictions under the Food and Drugs Act against the following "patent" medicines: Nurito, West Baden Sprudel Water, Radam's Microbe Killer, Dr. Hilton's Specific No. 3, Dr. Sullivan's Sure Solvent, Russell's White Drops. With the exception of the first two the products were declared misbranded chiefly because false fraudulent therapeutic claims were made for them. Nurito was declared misbranded because false statements in regard to the ingredients were made and West Baden Sprudel Water because it was not a natural water as claimed (*Jour. A.M.A.*, Oct. 17, 1914, p. 1408 and 1409).

TRANSACTIONS

OF THE

Clinical Society of the University of Michigan

Stated Meeting, October 7, 1914
Ann Arbor, Mich.

HOWARD H. CUMMINGS, M.D., President
UDO J. WILE, Vice-President
REUBEN PETERSON, M.D., Secretary-Treasurer.

Reading of Papers

THE UNIVERSITY HEALTH SERVICE.

HOWARD H. CUMMINGS, M.D.

Head of the University of Michigan Health Service.

Educational advantages, we are frequently reminded, impose responsibilities which may not be ignored. Knowledge not only is power, but carries with it the obligation of expending power for the social good. The best claim that an education can make on the respect of the world is that it develops a sense for superiority in all of life's choices. Its practical pursuit is human well-being, and this objective comprehends all those agencies which make for human efficiency. Chief among these agencies is health. Health is a basic necessity from which issue all those powers and potentialities which make for fullness of life. Recognizing the close affinity between health and social progress and security, educators the world over are waging battle against disease and ignorance, so that human beings generally may attain to happiness and efficiency. This splendid achievement cannot be left for the physician, the health specialist, to accomplish single-handed. His duty it is to direct the work, to lead the way, but to the intelligent person everywhere must fall a share of responsibility in the preservation of physical health and the prevention of disease. Mad houses, prisons, asylums, crime, moral and physical degeneracy, all these are the fruits of disease, and many of them root deep in ignorance and neglect.

It is my purpose to-day to review the work being done here at the University by the Health Service and to offer a few suggestions which may be helpful to you in the service you may render your fellows.

A few years ago, when members of the Michigan Union were investigating the organized health work in the schools of our country, and last year, when our regents established a University Health Service, the end in view was to increase the efficiency of our students by conserving their health. Incidentally it was believed that this University would graduate many active workers for the eradication of disease.

The first year's work of the Health Service has been conducted in a brick dwelling house adjoining the campus. This building contains waiting and examining rooms, offices, a small operating room, and a fully equipped laboratory. The first floor is given over to men and the second floor to women. Here all University students may come for consultations, examinations, and treatments. Prescriptions are filled in the chemistry building, under the supervision of the dean of the department of pharmacy.

A health service staff is composed of four physicians, a pharmacist, a nurse and a clerk. Thus far during the first year 15,790 office calls have been recorded; over 300 house calls have been made, and 3,470 students have been treated. These figures might convey the idea that the majority of Michigan students are in poor physical condition. This is not true, for our records include calls for physical examinations, vaccinations against small pox and typhoid fever, and cases of students seeking advice relative to the prevention and spread of contagious diseases. Moreover, it has been the policy of this service to encourage early consultation even for slight derangements. In this way many serious illnesses are avoided and contagious diseases checked. The value of this policy was demonstrated when measles, mumps, whooping cough, scarlet fever and diphtheria appeared with no resulting epidemic. Some of the most serious cases of blood poisoning, met in the work, could undoubtedly have been prevented if early attention had been obtained.

Contagious diseases are unusually threatening in a university town. Students come from all parts of our country and from many foreign lands. If exposed in their homes just prior to entering college or at the end of vacation periods, the disease will manifest itself soon after

the students take up their college work. The history of students suffering with contagious diseases, traces the origin of disease, in many instances, to the home town. This fact, makes the government health bulletins, which show the prevalence and distribution of disease, a great help to us in our work. If Toledo, for instance, has an epidemic of small pox, all students from that city who report at the offices are watched with scientific suspicion. There can be no doubt that Ann Arbor has for many years taken a serious risk in failing to provide a suitable contagious hospital. Now, however, a modern institution is available, and this danger is greatly minimized. A wise provision recently made by our regents will allow students when ill and sent by Health Service physicians to the hospitals, to remain in these institutions for a period of sixty days, if necessary. The expense will be covered by the "blanket tax." This action will be effective in October, 1914, and will greatly lessen the danger in rooming houses, where room-mates, fellow students and kind hearted landladies, all unwittingly spread contagion.

Each winter during the last three years a severe form of sore throat has appeared among the students, resulting fatally in several instances. In 1910 an epidemic, similar in nature, was reported in England. The next year Boston suffered from this disease, and in 1912 Chicago and Baltimore were visited by the same malady. In the England and the Boston epidemics the source of the disease was traced to milk obtained from cows with diseased udders. It has never been possible to demonstrate that the Ann Arbor milk or water supplies contained the infective agent.

Observations made by the Health Service during the winter and spring months of 1914, support the belief that the disease is brought in by students, and spread by contact. At the height of this year's epidemic, a survey of most of the organized house clubs was made. The findings were surprising if not convincing. The report from twenty-nine fraternities showed ninety-one mild and thirteen severe cases of throat infection. In ten sororities eighteen mild and three severe infections occurred. In seven approved rooming houses twelve mild cases were found and in all the clubs thirteen mild and four severe cases occurred. It will be observed that 154, or three-fourths of the cases treated, came from the organized house clubs. This means that the intimate association found in these organizations, makes contact cases possible. Fortunately, these organizations have taken steps to correct conditions and to improve the sanitation in their homes by appointing health representatives who will co-operate with the Health Service. It is hoped that in this way the first cases of sore throat may be detected and isolated, thus preventing a recurrence of this epidemic.

It will be interesting to consider some of the physical conditions that form obstacles to education. These conditions can be observed in any class room. Many times during the past year teachers have recognized physical defects and have referred students to the Health Service. It is hardly necessary to have a medical training in order to detect some of the conditions to be discussed. Every teacher in scanning the faces in his class room makes a mental survey and classifies each one as bright, attentive, earnest, studious, or dull, inattentive, indifferent, indolent. But has it ever occurred to the teacher that the latter class might be handicapped by physical defects which could be remedied? It has been observed that hundreds of university students suffer from nasal obstruction, either partial or complete. We immediately think of adenoids and then remember that this is a condition occurring in childhood and occasionally in adult life. Adenoids are the least common cause of nasal obstruction in students. Deformities of the partition or septum of the nose, as spurs and deviations from the midline, cause most of the obstructions, while enlargements of the turbinate bones lying laterally, are commonly associated with such deformities.

So many of the ills of mankind have been attributed to nasal obstruction that the following aphorism has become a commonplace; "Shut your mouth and save your life." From the student's standpoint this might well be changed to "Shut your mouth and grow wise." Not a few young people deny the charge of mouth breathing, for in many it is a nocturnal habit. But the coated tongue, headaches, inability to concentrate, forgetfulness and finally the examination, prove their statements to be false. If all the freshmen students would be examined and would have the deformities found corrected, their University work would be of greater value to them and their teacher's energy would be conserved. It is impossible to estimate the good that would result if the removable barriers to mental processes were obliterated. The importance of this is recognized in our institutions for the feeble-minded, where most of the inmates are congenital defectives. It is one of the most frequent curative measures taken, and the results testify to the wisdom of the treatment.

Associated with nasal obstruction, and fully as important, are diseased tonsils. To neglect the warning of repeated attacks of tonsillitis, is to invite physical disaster. Eventually, such neglect will bring about permanent damage to the joints, the heart or the kidneys. So often does so-called rheumatism accompany diseased tonsils, that one can well believe that rheuma-

tism is a mask behind which several infections travel.

It will not be a waste of time to call to your attention another class of students. Often in this class are found the more ambitious and capable persons and they receive your sympathy, for you are apt to explain their condition as due to overwork. Every teacher has a memory of a thin, pale, emaciated, fatigued individual, apparently working against great odds. They are industrious and capable, but they tire easily. Many such students have a focus of infection in their bodies.

Tuberculosis of the lungs, or any other part of the body, diseased tonsils, middle ear infection, chronic disease of the air spaces of the head, appendicitis, and many other conditions could be enumerated as the cause of the debility described. The body is fighting disease, and the individual is using a diseased body in getting an education. It is important that teachers know and recognize this, for much good can be done if these students consult physicians, and the earlier they receive aid the better. This is an age of co-operation, and surely it is not asking too much of those who instruct youth to observe the general physical condition of those instructed.

So far as students' progress is concerned, teachers who are not alert for symptoms of disease may readily imagine themselves poor teachers if they are dealing with mouth breathing students; and if they are trying to teach pupils who are suffering from chronic infections, they might feel like slave drivers.

A third class must be considered. It requires abundance of tact and a generous contribution of patience for teachers or physicians to meet, instruct and benefit those falling into this class. I have in mind the "nervous student." In a broad sense this includes all students at one time or another, but in a restricted sense it means those unfortunates who have inherited a weak nervous system, and who under a moderate degree of mental pressure show abnormal manifestations. Because of this fact they are always to be found just before or during an examination period. In attempting to prepare for oral or written tests, they become confused; they find themselves unable to read, for even a short period, without fatiguing the eyes; the attention cannot be fixed. After several attempts they become depressed, grow introspective, develop insomnia, lose appetite, suffer from palpitation of the heart, and develop various sensory disturbances. The picture is a sad one and the condition from the student's point of view seems hopeless.

Much good, however, can be accomplished for these sufferers. The process is often slow and great perseverance is necessary to effect a cure. Parents should direct nervous offspring into paths of even course, but it frequently becomes the duty of the teacher to advise a less strenuous line of work. Thus many unfortunate "college breakdowns" could be avoided. Once the disease is well established, it may require total abstinence from mental labor, or a complete change of environment and life work.

As an illustration of the good that can be derived from the treatment of a simple disease, let us consider a mild skin disease called acne. At the time of puberty the skin glands become unusually active; the sebaceous or oil glands often become occluded and so-called "pimples" of various sizes appear over the face, shoulders, chest and back. A few such lesions are overlooked but when a student's body is badly marked by this disease, a peculiar mental attitude develops. A person who was formerly cheerful and sociable may become moody and reticent. This change is brought about by several influences. The student usually has an exaggerated idea of the appearance of his skin, but remarks dropped by associates and others are poisonous to the acne patient's mind. Time and again students have come to my home to inquire if they were endangering themselves by sitting beside a fellow student with acne, or if it were safe to bathe at the gymmasium because they had observed certain men with eruptions on their bodies and feared a venereal disease. Is it surprising that those afflicted with acne shun the society of others? It has been a great pleasure to assure patients with this skin disease that they could be cured, and during this year over eighty such persons have taken treatment. Not uncommonly we see unkempt young men with acne after treatment escorting young ladies to ball games. This is an encouraging sign.

However true the statement may have been several years ago, I must take this opportunity to correct an idea that has pervaded our whole state, namely, that the University of Michigan is an unsafe place for young people because of the prevalance of venereal diseases. The University Health Service has encouraged these unfortunate students to report for care. Its policy has been to emphasize the criminality of conveying the disease to another rather than to dwell on the sin of contracting a venereal disease. You will immediately say that only a few would report to the Health Service for fear of exposure.

With the staff, "professional" secrets are held inviolate and fully one-half of the student cases treated in Ann Arbor have come under our care. As far as we have been able to ascertain, not over sixty cases have occurred this year among the students, and if any town or city in this or any other state, whose census includes five thousand young people, can show such a record, it may well be proud. This remarkable

change has not been brought about in a short time, or by any one agent. Instruction by wise parents and unselfish teachers has accomplished much. Locally, the attempt to free our city from immoral institutions is to be commended, but the enforcement of the state law prohibiting the sale of liquor to students has played a most important part in this reform. Most young people are safe when in possession of normal minds, but alcohol alters their perspective.

There are vast fields of labor before the University Health Service. Our first year has given us only an idea of the amount of illness to be eliminated. Next year our aim will be to prevent disease. It will take time and effort to teach personal hygiene to every student; to eradicate all contagious diseases; to instill into every mind, thoughtfulness for the other fellow; to show that clean living and efficiency go hand in hand; to recruit every Michigan student in health work and to make our slogan, "Every Michigan student sound; sound mentally and physically."

REPORT OF A CASE OF URETERO-CYSTOSTOMY.

REUBEN PETERSON, M.D.

(From the Department of Obstetrics and Genecology, University Hospital Ann Arbor, Michigan).

I desire to place upon record a rather unusual case. The patient, a married woman of 32 entered the University Hospital June 18, 1914. She was suffering from chronic inflammatory disease of both appendages, the right tube being especially large, the size of the fist, and the entire pelvic contents being bound together by inflammatory adhesions. June 25 both tubes and ovaries together with the uterus were carefully dissected and removed. Since the disease was of long standing the cervix was removed with the uterus to prevent the continuation of the gonorrheal cervical discharge which is apt to persist where a supravaginal hysterectomy is performed. Catgut was used for ligating the arteries and the amputated vagina was closed with the same material except for a small wick of gauze leading downward from the subperitoneal space.

The after history of the case was uneventful with the exception that shortly after the operation, ten days to be exact, she began to pass urine from the vagina as well as from the urethra. It was suspected that the patient had a uretero-vaginal fistula but she was discharged without further operation with the hope the fistula might close spontaneously, as not infrequently happens.

However, spontaneous closure did not take place and the patient re-entered the Hospital in September for relief of her distressing condition. Although she passed some of the urine by the urethra there was a continual flow of urine from a small opening in the left vaginal fornix. That the fistula was uretero-vaginal was proved by the fact that a methylene blue solution introduced into the bladder did not pass out of the vaginal opening but remained in the bladder until withdrawn by a catheter.

On September 18, 1914 a retroperitoneal transplantation of the left ureter into the bladder was performed. An incision was made in the abdominal wall, four inches in length and to the left of the former abdominal incision. The parietal perineum was not cut through but separated from the left pubic wall, down to the bottom of the pelvis. So great were the adhesions, however, that it was impossible to isolate the ureter until the peritoneum had been opened in the median line. Then with one hand within and the other outside the peritoneum, the left ureter was located and dissected out of its bed for two inches and a half before it entered the vagina. Great care was taken not to injure the blood supply of the ureter which was considerably thickened and slightly dilated. Its end was cut away from the vaginal wall and prepared for insertion into the bladder by splitting it upward for a third of an inch. Into each side of this split ureter was passed a number one catgut suture. A small incision was made in the base of and left side of the bladder upon a curved hemostat passed by the assistant to the posterior wall of the bladder through the urethra. The split edges of the ureter were fastened within the bladder by passing long straight needles through the bladder wall at some distance from the bladder incision and tying the catgut threads outside of the bladder wall. Before these were drawn tight and tied a silk ligature was passed through the end of the ureter and drawn down by the hemostat in the bladder, so as to insure that the end of the ureter was completely in the bladder and to steady the ureter while the latter was secured to the bladder incision. Fine silk ligatures were used for this purpose and the mucosal and muscular coats of the bladder attached to the ureter so that the bladder opening was closed securely around the ureter but not so snugly as to cause constriction of the latter.

A small gauze drain was led out through the vaginal opening and the reflected peritoneum sutured as closely as possible to the side of the pelvis, the operation being completed by closing the abdominal incision in the usual manner.

The gauze drain was removed in twenty-four hours. The patient was kept in the Fowler

position for a week and the bladder kept emptied by catheter or micturition for the first four or five days. Not a drop of urine has leaked through the vagina and the patient has made an uninterrupted recovery.

Fortunately such operations as I have just described are not particularly common, since the ureter is not very often the seat of a fistula. Whether I accidentally tied off the left ureter in ligating the left uterine artery or whether the fistula was the result of a sloughing arising from interference with the blood supply of the ureter one cannot say. The adhesions were so great at the vaginal opening of the ureter that it was impossible to make out the relations of the ureter with the bladder.

The kind of operation selected for ureteral fistula depends upon the seat of the ureteral lesion. If low down, as in this case, it is usually possible to free the lower end of the ureter and insert it in the bladder. If high up this may be impossible. Then the two ends of the ureter must either be anastomosed or else the kidney on that side must be removed.

One must remember that an ureteral fistula may be obstructing the passage of the urine lead to hydroureter and hydronephrosis and possibly infection of the kidney. Where this has occurred, if the kidney be healthy, nephrectomy may be safer than transplantation into the bladder.

Obviously the most delicate part of the operation just described is the securing of the ureter to the sides of the incised bladder. Too loose coaptation will mean leakage of urine from the bladder into the retroperitoneal space. If the sutures be passed so snugly that the ureter be compressed, dilation of the ureter and hydronephrosis may result.

Whenever possible the transplantation should be retroperitoneal since if leakage does occur the peritoneal cavity will escape infection.

DISCUSSION.

DR. W. D. SEELEY: I don't know that there is much to add to the paper. I had the after care of this patient and her convalescence has been entirely uneventful. The patient was of course put in the Fowler position for about three days and was catheterized every three hours. So far as I have been able to tell, there has been no leakage and no cystitis. Howard Kelly of Baltimore describes very minutely an interesting operation for transplantation by the vaginal route. This, however, is a very delicate procedure and so far as I have been able to tell by the description, would not have had a practical application to the case under discussion.

GRANULOMA FUNGOIDES—REPORT OF AN UNUSUAL CASE.

JOHN H. STOKES, M.D.

(From the Department of Dermatology and Syphilology, University Hospital, Ann Arbor, Michigan).

I have the pleasure of presenting before you this evening a rare form of a rare and much discussed dermatosis. Following the custom of our clinic, I shall give you an objective description of the patient's condition before considering her history.

Mrs. N. is a woman in later middle life, in good general health. She has been able to perform household duties to within a short time before her entry in the Hospital. The lesions of which she complains are confined at the present time entirely to the right foot. The essential gross pathologic feature is a tumor mass in the skin itself. The neoplasms vary in size from that of a split pea to perhaps half a hen's egg, are hemispherical in contour, of a reddish purple color, a rather soft, almost cystic feel and occasionally present slight scaling. The skin from the sole of the foot to a short distance above the ankle is dusky, moderately hyperpigmented, thickened and boggy although there is no frank oozing. There is a certain tendency to confluence among adjacent tumors, and a further tendency on the part of the larger masses to break down, forming indolent ulcers with irregular borders and unclean granulating bases. Especially notable in connection with this tendency to ulceration is an equally marked predisposition to spontaneous healing, easily apparent along the margins of this large ulcer on the dorsum of the foot. Within the few days that this patient has been in the Hospital this lesion has already undergone a striking spontaneous involution, without treatment. Another type of lesion to which I wish to direct your attention is that best seen upon the sole of the foot—a circular infiltrated erythematous placque elevated little if at all above the surrounding skin in the earlier stages. These chilblain-like lesions progress and regress and can be seen in all stages of their evolution within a small area. They are the precursors of tumors such as I have just described, the earliest form of infiltration. On the dorsum of the foot and on the heel their transition into nodules can be studied. The rapidity with which they may appear in what is to all appearances normal tissue, is evidenced by the fact that three days ago the border of this large ulcer showed an uninfiltrated, normally-developing scar. Since that time half a dozen of these circular, deep pink infiltrates have come into existence within a few millimeters of the ulcer margin. Several of the larger non-ulcerated masses have diminished as much as a third in size since the patient

was first seen, while others have remained stationary. Notice if you will the sessile growths on the dorsal surfaces of the toes, which are homologous with the tumors on the dorsum of the foot and the leg. Apart from the fact that a restricted area is affected there is no distinctive grouping of the lesions and the ulcers have no well-defined configuration.

The general examination of this patient reveals several features of decided interest. There is a notable absence of lesions of the type described elsewhere on the body. Over the right elbow is a group of scars, atrophic and superficial with slight hyperpigmentation. There is an exostosis on the left clavicle. On the right *labium minus* is a perfectly circular slightly depressed scar-like area six millimeters in diameter. The left pupil is oval and reacts very little to light. A marked leukoplakia is present at the angle of the mouth on the left side, and there is considerable superficial scarring of the soft palate. The Wassermann reaction is positive.

The history of the patient is essentially as follows: Fifteen years ago as a result of extramarital exposure she developed a small hard painless sore on the site of the scar on the labium, above described. About a year after she had a very sore mouth and throat, refractory to local treatment, and lasting several months. Before this condition had cleared up the left eye was affected, the symptoms suggesting those of an iritis. Incidentally, traces of this iritis were found in her examination by the Ophthalmologic service. Six years ago a pea-sized nodule appeared beneath the skin of the right foot. The skin scaled a little, and a gradually extending erythema appeared. Infiltrated areas appeared from time to time and disappeared leaving no traces. Four years ago several small nodules appeared above the right elbow. These became red, scaled and disappeared within a week, leaving scars. The patient says they did not ulcerate. At intervals up to the present time lesions have appeared upon the foot but have regressed without scar formation. Six weeks ago the onset of the present attack was noted, in the form of a group of nodules, which increased rapidly in size, were painless and in some cases underwent central ulceration with spontaneous healing. The patient has also noticed variations in the size of the larger nodules from time to time. The chilblain-like areas have become tender of late. New lesions appear as the older ones involute.

With so entirely satisfactory a history of lues, combined with conclusive objective findings, the foot condition should be luetic. I could not present you with a better example of the value of the purely objective diagnosis in dermatology than this case affords. Whatever condition we may be dealing with in the region under discussion, it is not luetic.

Summarizing then, the patient presents in addition to a history and examination which establishes the fact that she is syphilitic, a pathologic process at present affecting the right foot, chronic in character, consisting of infiltrations and tumor masses which appear and disappear, present no definite configuration or distribution suggestive of lues, show a spontaneous tendency to ulceration and an equally marked tendency to spontaneous healing. All the characteristic lesions exhibit in varying degrees this evanescent character. From the anamnesis we gather that there were at one time similar lesions on the right elbow and that all the lesions of the present type have had prodromal manifestations in the form of erythematous patches and in-

Granuloma Fungoides

filtrations not marked enough to be called tumors which have also been of an evanescent type. The subjective symptoms have been negligible and the general health unimpaired.

In discussing the differential diagnosis, lues scarcely occurs to the observer. So large a number of gummatous lesions in so circumscribed an area would be extraordinary. The total absence of arciform configuration, the irregular jagged ulceration without gummatous sloughing, the superficial scars or their entire absence in so chronic and extensive an involvement, would be more extraordinary still. These considerations are quite sufficient to rule out the objective diagnosis of a nodulo-ulcerative syphilide. There are no late luetic lesions of the type represented by the chilblain-like plaques in the sole of the foot. The fugitive character of the lesions, again, is out of keeping with a lues.

Sporotrichosis is a possibility readily eliminated. Although gumma-like masses may form

in a sporotrichosis, frank open ulceration is not the rule, the tendency being much more to deeper-seated involvement and the formation of sinuses. The first of the real possibilities is sarcoma cutis, which not infrequently occurs at such a site as this, is very slow in its development as compared with other sarcomata, and also metastasizes less rapidly. The nodules in this case are certainly very suggestive of those of the *Hautsarcom*. But the tendency to healing and spontaneous retrogression to which I have repeatedly called your attention is at variance with the behavior of the typical malignant neoplasm. None the less this possibility deserves due consideration.

The limitation of this condition to the foot and the dusky purplish discoloration of the skin suggest another malignant condition, relatively little seen in this country, the multiple idiopathic hemorrhagic sarcoma of Kaposi. This disease is almost racial in its distribution, however, being limited practically to Galician Russian Jews, and seldom presenting such extensive tumor formation as that noted in this case.

The final possibility is that of mucosis fungoides, a relatively rare dermatosis of unknown etiology. There may be present with us tonight some who recall the case reported by Dr. Breakey some years ago, remarkable for the extreme disfigurement and mutilation which took place before the fatal termination. In typical cases a well-marked division into stages in a chronic course occurs. The earliest manifestations usually take the form of peculiar erythemas, more or less extensive, with slight scaling and in many cases, the most intense and excrutiating pruritus. These erythemas disappear and reappear, assume eczematoid characteristics and varying degrees of generalization. They are succeeded by lichenoid eruptions on an erythematous and edematous base, with the element of infiltration increasingly prominent. Pruritus is the principal subjective manifestation. The general health is not directly affected at first, but later exhaustion and emaciation set in and the patient may die before the last stage of the eruptive phenomena is reached. In contradistinction to the last or mycotic stage, these prodromata are spoken of as premycotic. The last stage of the disease is characterized by the formation of tumor masses of the type described in this patient. The fugitive, evanescent character persists, the tumors coming and going, ulcerating and healing with more or less extensive mutilation, until exhaustion, diarrhea and progressive emaciation terminate in death. As a rule mycosis fungoides is generalized, with extensive involvement of the skin of all parts of the body. Its limitation to a single region as in this case is exceedingly rare. When it occurs the premycotic stages are not well marked and the appearance of tumors may be the first manifestation—the *"forme a tumeurs d'emblee"* of Vidal and Brocq. It is to this type that the present case in the main conforms.

Of the etiology as I have intimated, practically nothing is known. The resemblance of the pathologic picture to sarcoma cutis has led some observers to classify mycosis fungoides among the malignant connective tissue neoplasms. Metastases apparently occur in the liver and spleen. The view is now generally conceded to be mistaken, however, and the tendency is to regard the condition as allied to the lymphodermias, since the collections of cells in the cutis which are characteristic of the histopathologic picture are now believed to be lymphocytes. Large numbers of a peculiar form of mast cell are also found. The conception of the association of the condition with lymphoid hyperplasia has been strengthened by the associated occurrence of lymphocytosis in the blood, even simulating that of a leukemia, and the presence of a general adenopathy and enlarged spleen in a considerable proportion of the cases. There was no notable adenopathy in this case, and no splenic enlargement. The differential count was as follows:

Small lymphocytes	4 per cent.
Large lymphocytes	14 per cent.
Transitionals	2 per cent.
Neutral polynuclears....	80 per cent.

Red cells 5,328,000; white cells 10,900; Hemoglobin (Talquist) 80 per cent.

Biopsy was taken by Dr. Senear, who is undertaking a special study of the histopathology of these lesions. It is only necessary to state here that the microscopic findings fully confirm the diagnosis in this case.

Mycosis fungoides is an invariably fatal disease, the patient seldom living more than two to four years after the onset of the mycotic stage without treatment. The only treatment which has been of any considerable avail is the Roentgen ray, which often keeps the local manifestations in abeyance for long periods of time. Arsenic has been used internally, but on the whole is of little value compared with the first-mentioned treatment. This patient has had an X-Ray exposure only very recently and it is still too early to see the effect.*

DISCUSSION.

DR. UDO J. WILE: There is very little to be added to what Dr. Stokes has said. The first thing that suggests itself, however, is the fact that mycosis fungoides is a very bad name, that is, suggests some

*As this report goes to press a new group of typical nodules has appeared in apparently sound and previously unaffected skin about two inches below the patella on the right leg. At the time this case was presented and discussed the histopathologic examination had not been completed. These findings entirely eliminated sarcoma cutis from the differential diagnosis.

organism as the etiologic factor. As a matter of fact, there is no germ origin responsible for this condition, and a very much better name is that of granuloma fungoides. I have seen very few of these cases,—six all told. They are extremely rare. This one is exceptionally rare, being so distinctly localized. Usually the patients are fairly well covered with these lesions, and in the case which Dr. Stokes has mentioned, the patient was covered from head to foot with a mass of tumors which by confluence absolutely obliterated the features of the individual. In the last stage he was unrecognizable. A most interesting feature of the disease has been noted by Paltauf who found in a number of cases of this disease an associated blood picture of lymphatic leukemia and who, because of this, regards mycosis fungoides as belonging to the leukemic group of diseases. It is more than likely that granuloma fungoides can be associated with the blood picture of leukemia, rather than that it is a manifestation of real leukemia. In this case, as Dr. Stokes suggested, we are not entirely satisfied as to the differential diagnosis, but we believe it to be a case of granuloma fungoides. I am quite certain, however, that we shall be able to make a differential diagnosis which will establish the diagnosis.

DR. C. B. G. DE NANCREDE: We really do not know very much about sarcoma, but certainly surgical intervention after the length of time the history indicates the disease has existed in this patient in undoubted sarcoma of bone of the muscles or the intramuscular septa would be of little avail because of almost certain metastases. I believe if you could demonstrate the absence of complication, in true sarcoma an early operation might be curative, but this disease does not behave like genuine sarcoma.

A CASE OF DERMATITIS EXFOLIATIVA

FRANCIS E. SENEAR, M.D.

(From the Department of Dermatology and Syphilology, University Hospital, Ann Arbor, Michigan).

I have the pleasure of presenting this evening a very striking and relatively infrequent dermatologic condition. Let us first consider the findings on examination, and follow with the history of the case.

The patient is a poorly nourished man of medium size, the skin of the entire body being of a bright beefy red color, brawny, thickened, infiltrated, and at the flexures thrown into folds corresponding to the lines of cleavage of the skin. Upon this brilliantly erythematous base is superimposed a marked desquamative process, yellowish scales being apparent in profusion over all parts. The skin as a whole is remarkably dry, and I will ask you to notice the absence of any oozing or crusting, this point being of importance in the diagnosis of the condition. The palms and soles exhibit signs of marked desquamation, and the nails of both hands and feet are thickened and thrown into folds, and on several of the fingers have already been shed. Over the malar eminences are to be found the only parts of the skin which have been spared. The oral mucous membranes, with the exception of slight leukoplakial scarring, are normal. The conjunctivae, however, show some injections, and there is a slight purulent discharge at the inner canthus, as well as some marginal blepharitis. There is a very marked general adenopathy, some of the glands being as large as a walnut.

This patient entered the University Hospital about three weeks ago, and his condition at that time was practically the same as at present, although the redness of the skin was much more intense. The family history of the patient shows nothing of interest. His personal history, however, discloses the fact that he has been a heavy whiskey drinker for a number of years. Furthermore, he has suffered for fifteen years from a chronic eruption, the nature of which is unknown, the patient's description suggesting an eczema, and indeed it was so diagnosed by several physicians.

The present trouble began about fourteen weeks ago. Shortly before this time the patient had visited a physician who evidently believed him to be syphilitic, and he was given an injection of the salicylate of mercury in the buttock. Two days after the injection a number of red patches, varying in size from that of a quarter to that of the palm of the hand, appeared on different parts of the body. These rapidly increased in size and coalesced, until in two days time the whole body was covered. Scaling began almost immediately. The first scales were quite large, some of them being six inches square, and perfect casts of portions of the palms and soles were exfoliated. After these large scales had been shed, a fine branny scaliness of the type seen at present began, and has continued undiminished until the present time. The extent of the scaliness is evidenced by the fact that we were able to gather a half cupful of scales from the floor after the patient had been examined on entry. There has been practically no pruritus with the condition, only some slight itching about the hands and wrists.

The onset of the eruptive feature of the condition was accompanied with marked constitutional symptoms. Following the appearance of the eruption the patient suffered with chills and fever, and complained of weakness and malaise. He began to lose weight, and at the time of entrance to the Hospital had lost fifteen pounds. As is common in this condition, he has felt chilly whenever he has not been well protected from the air. During his residence in the Hospital the patient has regained a small part

of his lost weight, has suffered no chills and has had but an occasional slight rise in temperature.

This case presents but a few possibilities when we come to consider the differential diagnosis, there being but three conditions in which we find a generalized reddening of the skin with pityriasis, universal eczema, universal psoriasis, or one of the forms of exfoliative dermatitis. Eczema can be easily ruled out, for it would be impossible to have so generalized an eczema without being able to find in some parts the characteristic features of this condition—oozing, fissuring, crusting, etc., or the subjective symptoms of itching, burning and the like. In psoriasis the condition is rarely truly universal, the scaling is more abundant and in some areas would be of the characteristic silvery type, showing a capillary hemorrhage on scraping. Furthermore, typical papular lesions would be found at the borders of some of the areas.

This leaves by a process of exclusion one of the forms of dermatitis exfoliativa, and all the findings and facts in the case confirm this diagnosis.

Under the head of exfoliative dermatitis we find grouped a number of different conditions which are variously classified by different authors. In order to avoid confusion, we will follow the grouping adopted by the English, one which includes scarlatiniform erythema as the first member of the three main types, the other two being the dermatitis exfoliativa of Wilson, and pityriasis rubra of Hebra. Among other conditions which are placed in this group, are dermatitis exfoliativa neonatorum (Ritter's disease), epidemic exfoliative dermatitis, and the exfoliative dermatitis associated with leukemia or lymphadenoma, but as these conditions are probably of a different nature, they are merely mentioned here.

One of the main points of difference between the three first named groups is the time element, but that there are other and equally important variations, the following brief discussion will serve to demonstrate:

In the recurrent desquamative scarlatiniform erythema we are dealing with a condition whose etiology is unknown, but is probably due to toxemias of various origin. The ingestion of certain drugs, notably mercury, quinine, belladonna and opium, has produced a similar if not identical state, and the condition has been said to occur in connection with gonorrhea, albuminuria, pyogenic infections, and the ingestion of certain foods. Following a period of several days during which there are marked constitutional symptoms, nausea, headache, shivering and more or less fever, a universal bright scarlet punctate or macular eruption appears, beginning as red itching patches which quickly become generalized. Desquamation begins within a few days, and the epidermis may be shed from the hands and feet en masse. Following this type of desquamation, branny desquamation may follow for a week or more. Relapses are common, so the condition may persist from one to several weeks, being relatively acute. The prognosis for recovery from any single attack is good, but as the name suggests, one must always bear in mind the possibility of future attacks.

In dermatitis exfoliativa of the type described by Sir Erasmus Wilson, there is also no definite etiologic factor known, but profound mental disturbance, exposure to cold and wet, and the ingestion of certain drugs, notably mercury, have been suggested as possible causes of the so-called primary type, and it has been noted that alcoholic or rheumatic patients apparently are predisposed to the condition. In the secondary cases, the exfoliative dermatitis develops in a patient who for years has suffered from some chronic skin condition, as psoriasis or eczema. The disease begins with the appearance of several erythematous itching patches which rapidly increase in size and coalesce, until in the course of two or three days the entire body is covered. The desquamation begins after the redness has been present for several days, the skin remaining dry with no suggestion of crust formation or exudation. The scales are very abundant, and are thin and of varying size, sometimes being large and paper like. The desquamation continues from one to several weeks, the hair and nails often being partly or completely shed, a rare occurrence in the first described condition. The constitutional symptoms are less marked in this subacute type than in the scarlatiniform type, although there may be some symptoms at the onset and fever may persist throughout the course of the condition. The prognosis is most uncertain, as recovery may take place in from several months to years, or the patient may die from exhaustion or some intercurrent infection. In case of recovery from the attack, however, the patient is apt to suffer from recurrence of the condition.

Pityriasis rubra of Hebra, which is a very chronic and invariably fatal condition, begins with the appearance of bright red patches in various regions, especially at the flexures of the large joints. Becoming covered with fine scales, the patches gradually extend, until in months or years, the whole body is of a red color. In both the Wilson type and in this condition the skin undergoes atrophy, but it is more marked in pityriasis rubra, the skin here becoming so retracted that movements may be restricted and ulceration occur over points of pressure. The general health is affected sooner or later, the

strength fails, and the patient dies. The etiology of this condition is even less thoroughly understood than that of the other types but it has been suggested that the occurrence of tuberculosis in many of the cases may be of significance.

The case presented for your observation this evening is one of the second named type, dermatitis exfoliativa of Wilson, as the history and findings have no doubt shown you. The patient presents an interesting set of possible etiologic factors, each of which has been mentioned in discussing the condition. He has suffered from what was apparently an eczematoid process for a number of years, is avowedly a heavy whiskey drinker, and had received injections of mercury.

I feel that the patient is on the road to recovery from this attack, and you will perhaps be interested in the therapeutic measures employed. There is no specific therapy for this condition, the main effort being directed toward keeping the patient in good general health and as comfortable as possible. To meet the former requirement we are first forcing food. He receives daily three full meals with a light lunch twice daily, and he is given special milk and frequent hot drinks in addition. Furthermore, pilocarpine sweats are being given to combat the tendency of atrophy of the sweat glands, and strychnine in tonic doses is used as a further supportive measure. Quinine is being employed in large doses, as this drug, as well as arsenic and the salicylates are empirically used in cases of this type. The only external medication has been the use of eucerine, this ointment serving to keep the skin soft and pliable and that is all that is necessary in non-pruritic cases. If itching were present, however, it would be necessary to incorporate some anti-pruritic agent in the ointment.

In closing I may say that as a result of the tendency which this man has shown to improvement, I consider the prognosis fairly favorable for this attack. In case this favorable outcome should ensue, with a careful avoidance of the apparent etiologic factors in this particular instance, it is possible that the patient may go through life without other attacks, but, of course, such a favorable prognosis can only be hoped for.

DISCUSSION.

DR. UDO J. WILE: This is the third case that we have seen of dermatitis exfoliativa in the last two years. Each has illustrated a very important lesson,—the necessity of correctly diagnosing a dermatosis. In the first case, one of psoriasis becoming generalized, the patient succumbed. The second was one exactly like the one before you tonight. The patient had had psoriasis for many years and had received arsenic in large quantities with a sudden outbreak of a generalization of his condition as in this case. In that case, I gave a dubious prognosis. The patient, however, cleared up in from six to eight weeks, entirely, to return in a year with a much milder recurrence which also cleared up.

The danger to life in these cases is apparent. The loss of function of a large area of skin surface throws a tremendous strain on the renal system. These patients, as a rule, develop nephritis if the condition remains for any great length of time, and usually succumb from the effects of nephritis. The patient before you had either eczema or psoriasis, either of which has become generalized perhaps as the result of the irritation of mercury. No blame attaches, however, to his physican, since the patient gave a history of syphilis, and it was impossible to foresee any idiosyncracy to mercury. The improvement is rather slow up to a certain period. When the patients begin to get well, however, they usually improve rapidly. In this particular case before us, the prognosis looks very dubious to me. The patient has been in a number of weeks and I am not convinced that he has made any very marked improvement.

REPORT OF A CASE OF TYPHOID OSTEOMYELITIS.

Q. O. GILBERT, M.D.

(From the Department of Internal Medicine. University Hospital, Ann Arbor, Michigan).

This case is reported first because of the relative infrequence and second because of points of diagnostic interest. The patient who is a photographer entered the Medical Clinic complaining of severe pain in his right leg and hip, fever, sweats and chills. Family history is negative. The previous medical history of the patient is unimportant until two and one-half years ago when he had a fever lasting several weeks, which was diagnosed as typhoid. The history of his illness was rather indefinite, partly because the diagnosis and treatment were under the supervision of an osteopath. At this time the patient was in bed three and one-half weeks. At the later part of this illness he sustained some injury to his leg and hip. He thinks the hip was dislocated. The skin of the leg, hip and thigh was said to have been tender and sore on pressure for three and one-half months. More definite history could not be obtained. There was apparent recovery from this trouble until some eight weeks previous to patient's entry to the Hospital, when the right leg and thigh became sore. The muscles jerked almost continuously and later a severe pain developed referable to the posterior part of the thigh and leg. Fever apparently did not start until four weeks after the onset of the present trouble. It began in the afternoon with a chill and rose to 104°. After the fourth day the patient began to sweat at night, which he thinks

was caused by large doses of aspirin taken at that time. Upon entrance to the Hospital the patient had a temperature of 104.2° and complained of great pain in the right leg, largely referable to thigh and hip. Incomplete examination at that time showed the lungs to be entirely negative, heart negative except for the rate of 100 to 110, abdomen lax, spleen and liver not felt. Red blood cells were 4,500,000, whites 8,250 and hemoglobin 80 per cent. Miescher. Because our attention was so largely called to the hip an X-Ray was taken and Dr. Van Zwaluwenburg reported "no pathology discoverable and advise ray of lower lumbar and sacrum." Following a more careful examination the reflexes were found about normal or slightly increased, and the right leg below the knee was observed to be slightly larger than the left, warmer and more tender on slight pressure. The upper third of the right tibia was somewhat larger than the left, not so smooth, pain was somewhat more intense over the bone after constant light pressure. Dr. Klingman examined the patient with special reference to nerve tenderness and could find none. A second blood count was made, which showed red cells, 4,320,000, whites 8,800 and hemoglobin 70, Miescher with a differential count of small lymphocytes 11 per cent., large lymphocytes 6 per cent., transitionals 3 per cent. and polymorphonuclears with slight increase of platelets. A Widal on the blood was done at this time with the result that a dilution 1-20 agglutinated in three minutes, complete in 12, 1-40 began to agglutinate in four minutes and complete in forty minutes, 1-80 about two-thirds agglutination in one hour, 1-160 none in half hour and partial agglutination in one hour.

An X-Ray of the right leg showed "central erosion at the juncture of the upper and middle third of the tibia with marked cortical sclerosis and periostitis. Sclerosis extends for a distance of about six inches." Diagnosis "Osteomyelitis."

Upon the physical findings, absence of a leucocytosis, marked positive Widal reaction, the diagnosis of typhoid osteomyelitis was deemed justifiable, whereupon the patient was transferred for operation.

Upon opening the shaft of the tibia by Dr. Darling, considerable pus and sequestrum were removed. A quantity of the pus and a small sequestrum was taken for bacteriologic study. On agar streaks and in beef tea pure cultures of actively motile bacilli were obtained, answering the characteristics of B. typhosus. The first transplant, twenty-four hour culture, was agglutinated against the serum of a convalescent typhoid patient whose serum was previously tested against our known typhoid culture and also against the patient's own serum with the following result.

Against the convalescent typhoid serum
Dilution 1-20 complete agglutination in 15 min.
Dilution 1-40 complete agglutination in 18 min.
Dilution 1-80 complete agglutination in 40 min.

Against the patient's serum
Dilution 1-20 agglutination complete in 11 min.
Dilution 1-40 agglutination complete in 13 min.
Dilution 1-80 agglutination complete in 50 min.

Control was still very active at the end of one hour and fifteen minutes. No agglutination. There was marked dissolution of the bodies of the organisms in all the dilutions against both sera at the end of one hour.

Dr. Van Zwaluwenburg upon a recent examination of the plates of the tibia expresses the opinion that the process is primarily a medullary or cortical one based chiefly upon the fact that the periostium is relatively smooth and shows no elevations or roughening common to a primary periostitis. Of special interest in this case is apparently a primary infection with a pure culture of a B. typhosus in the medullary and cortical portion of the bone causing a pyogenic process. A case of osteomyelitis with no leucocytosis and a marked fever reaction which is largely against the rule in the reported cases of bone infection with B. typhosus.

Keen in his "Surgical Complications of Typhoid Fever" collected the cases of bone infection with B. typhosus from the literature of twenty years and found 208 cases. In bacteriologic examination in fifty-one cases, thirteen showed pus organisms, thirty-eight typhoid bacilli, fourteen of which were in pure culture. He does not classify the cases as to the primary location of the infection but evidently from the discussion the larger number are primary cases of periostitis with abscess formation and caries following. Very few of the cases were primarily localized in the cortical or medullary portion of the bone. McCrea states that typhoid osteomyelitis with a sequestrium is relatively rare and the more usual types of typhoid bone infection is a chronic process resembling a cold abscess. Nichols in Keen's system of surgery states that the typhoid bacillus may cause suppurative processes in the bone. As a rule the lesions are small in extent. They are usually superficial and the destruction of the marrow is slight unless there is a secondary infection.

Keen reports a long list of experiments in which a mixture of typhoid bacilli and staphylococci were used which showed that the cocci had greater viability than the bacilli which seemed to prove that if the infection was found to be one of typhoid bacilli it is unlikely that the cocci ever existed there and further experimental local inflammations with suppuration were produced in bones by pure cultures of typhoid bacilli. In this connection Colzi's exper-

iments are interesting from the fact that intravenous injections of B. typhosus in the veins of rabbits gave negative bone lesions unless fracture or injury to the bone was made previous, when eleven out of fourteen gave bone infection.

From the fact that the B. typhosus is found more frequently in the bone marrow than in the gall bladder and spleen, it is rather singular that bone disease is not more frequently found to be caused by the typhoid bacillus.

From the cases reported the time of occurrence of bone lesions varies from immediately following typhoid fever to as long as seven years afterwards. The tibia is most frequently affected, next in order are the ribs, femur, ulna, humerus, pelvis and foot, with practically no bone of the body exempt. The prognosis is usually favorable although there is great tendency to chronicity and subsequent attack in other bones. In this case the high fever with remissions was followed by almost normal temperature after drainage of the bone lesion.

DISCUSSION.

DR. C. B. G. DE NANCREDE: I think the doctor has covered the subject very fully. I would like to call attention to one point. Bone infections which occur in cases of bacteremia are practically never known unless you have some traumatism of the bone. This is a very old observation. You can put almost any quantity of cultures into the blood and they will disappear in a very short time unless a contusion, juxtra epiphyseal strain or fracture of a bone occurs during the time the microbes are still present in the blood, when osteomyelitis may develop.

Ginseng.—Despite the fact that the peculiar man-shaped root of ginseng has no medicinal value so far as science can determine, the Koreans for decades paid their tribute to China in ginseng. In China it is reported as a cure for all ills that human flesh is heir to and has a special reputation as an aphrodisiac. Perhaps there is no better illustration of the virtues of aphrodisiacs in general than the fact that the Chinese are quite sure of the marvelous efficacy of ginseng though no evidence of its virtures can be obtained in the West (*Jour. A.M.A.*, Oct. 24, 1914, p. 1486).

Celerina and Aletris Cordial (Rio Chemical Co.)—Celerina is a shot-gun mixture said to contain, in addition to 42 per cent. of alcohol, kola, viburnum, celery, cypripedium, xanthoxylum and aromatics. Aletris Cordial is said to contain 28 per cent. alcohol (more than is found in wine) besides three obsolete and valueless drugs, aletris, helonias and scrophularia. Whatever virtue there is in Celérina and Aletris Cordial is derived from the alcohol (*Jour. A.M.A.*, Oct. 17, 1914, p. 1411).

Use of Paraffin Oil.—While it is recognized that cancer may be caused by chronic irritation, the paraffin oil used medicinally is bland and non-irritating and there is no reason to suppose that its continued use would cause cancer. A good quality of oil may be obtained by prescribing *Paraffinum Liquidum* or *Pertolatum Liquidum Grave* (*Jour. A.M.A.*, Oct. 17, 1914, p. 1411).

Hemo.—The Thompson Malted Food Company, Waukesha, Wis. which sells Hemo, Malted Milk and Malted Beef Peptone, offers its stock to physicians with promises of large profits. Hemo is advertised as "the food that builds up weak stomachs" and is stated to contain "the iron of spinach, the juices of prime beef, the tonic properties of selected malt in powdered form and the richest sweet milk." Hemo is "promoted" by absurdly extravagant claims and pseudo-scientific nonsense. Disregarding the question whether or not this is a stock jobbing scheme or whether the purchase of the stock is a good investment, physicians who buy the stock and prescribe the firm's output are not giving their patients a square deal (*Jour. A.M.A.*, Oct. 24, 1914, p. 1494).

Action of Sodium Cacodylate.—Containing its arsenic in organic combination and in the pentavalent state, which becomes therapeutically active only as it is reduced to the trivalent inorganic state, sodium cacodylate is so slightly toxic that therapeutic doses do not give rise to toxic symptoms. There is nothing in the literature to show that sodium cacodylate has a special action on the eye and blindness from its administration need not be feared (*Jour. A.M.A.*, Oct. 3, 1914, p. 1223).

Agar-Agar-Biscuits.—To make agar-agar biscuits it is only necessary to add finely powdered agar-agar to the flour used in making the biscuit. The amount should be, if possible, sufficient so that a dose of 5 Gm. will be contained in each biscuit (*Jour. A.M.A.*, Oct. 3, 1914, p. 1224).

Glycothymoline not Harmless.—Glycothymoline is a mild antiseptic practically devoid of germicidal power and when used as a simple mouth wash is practically harmless. However, the recommendations to the public for its use in serious diseases make it a menace to the public health—and physicians are responsible for its wide spread use (*Jour. A.M.A.*, Oct. 10, 1914, p. 1304).

Phenolax Wafers.—These are tablets said to contain phenolphthalein 1 gr., "aromatics" and sugar enough to make five grains. It is a question what purpose the "aromatics" and sugar serve, perhaps these are to mislead the unthinking to believe that this combination has some mysterious value over phenolphthalein itself (*Jour. A.M.A.*, Oct. 17, 1914, p. 1410).

The Detroit Society of Neurology and Psychiatry

C. W. HITCHCOCK, Detroit, President
GUY L. CONNOR, Detroit, Secretary

The annual meeting the Detroit Society of Neurology and Psychiatry was held in the Wayne County Medical Building, Detroit, on October 1, 1914 with the President, Carl D. Camp, in the chair. There were twenty-one members present.

The minutes of the previous meeting were read and approved.

The annual report of the Secretary showed that six meetings were held with an average attendance of nineteen, that papers had been given by seven members and that eighteen had taken part in the discussions. The total membership was reported as thirty-two, one having been elected and one having died during the year.

The annual report of Treasurer was read and accepted.

The following officers were elected:

President—C. W. Hitchcock, Detroit.

Vice-President—Theophil Klingmann, Ann Arbor.

Secretary-Treasurer—Guy L. Connor, Detroit.

Members of the Council—E. A. Christian, Pontiac and D. R. Clark, Detroit.

The auditing committee found the Treasurer's ac counts correct.

The following *In Memoriam* notice of Dr. Long of Ionia was read by C. W. Hitchcock:

"Oscar R. Long, a member of this society, died suddenly in the early hours of September 10, 1914.

"Born in 1850, in Pennsylvania, he was educated in the public schools of that state, the Medical Department of the University of Michigan and the Detroit College of Medicine.

"Ten years after taking up practice in Ionia, Doctor Long was appointed Superintendent of the Asylum for the Dangerous and Criminal Insane and continued in charge of that Institution until his death.

"Deeply interested in mental disease and the welfare of the insane, Doctor Long was often consulted as an expert. He was a man of positive convictions and often testified in cases of medico-legal interest.

"He was a frequent attendant at our meetings and his presence will be missed from our gatherings.

"The Society extends its earnest sympathy to the widow and daughter who survive him."

It was voted to spread it upon the records and send a copy to the widow.

The Secretary was instructed to corespond with the Editor of the *Journal of the Michigan State Medical Society* relative to the publication of our transactions in that *Journal*.

PROGRAM.

David Inglis of Detroit reported the following cases:

Dr. Inglis presented two cases of muscular atrophy involving in each case, the right hand; both cases came to him in twenty-four hours of each other. In both the duration has been the same, to wit; six weeks, yet the history of causation had been utterly unlike.

CASE 1.—Age 26 years; was shot in the upper arm, in March, 1914; X-Ray plate shows that the bullet had splintered into many fragments which still remain scattered in the flesh of the arm.

Evidently, from the history, the ulnar nerve was damaged but not cut through. An ulnar neuritis was set up of which there are still evidences in the way of numbness, impaired sensation and power, but no atrophy. The interesting phase of the case is that, at least four months later, he developed a rapid muscular atrophy on the radial side of his hand but no pain; paresthesia or motor defect has never pointed to any radial neuritis. Whatever motor defect there is has been the result of his atrophy but did not precede it. Dr. Inglis believes that he has degenerative changes going on in the cervical anterior horns. The relation of this to his gunshot wound is probably by an ascending ulnar neuritis.

So many, and so scattered are the fragments of the bullet that any attempt to dissect them all out would probably cause more damage than the presence of the foreign bodies.

CASE 2.—Age 23 years, has been a riveter for two and one-half years. The jarring from use of a pneumatic riveter seemed to have no ill effect until he rapidly developed an atrophy of the thenar and hypothenar eminences and the interosseous muscles. At times he has a transient rigidity and immobility of the entire hand.

Careful questioning and examination fail to bring out any cause of the atrophy save the incessant jarring of the pneumatic hammer.

When one considers the severity of the vibration to which riveters are subjected the wonder is that neuritis and muscular dystrophies are not much more common than they are.

Dr. Inglis had expected a third case of muscular atrophy—in the absence of the patient he read the following brief abstract of the case:

"Eight years ago I was called to see a lad of 17 years who had developed a singular paresis of the entire body with marked universal atrophy of the muscles, yet some movement still persisted.

He had then lost weight from 160 pounds to about 125. At that time it seemed largely a problem of maintaining life itself although there were no bulbar symptoms; I made this note: There is still a chance of improvement if your nerves can be well fed, for the paralysis is not completed.

Under forced feeding he came up. Now, September, 1914, he is a fine robust young man whose only evidence of his former universal atrophy is an atrophy in both thumb muscles and in his feet. These have persisted since the original trouble.

This case was orginally, I believe, one of a universal toxemia of the peripheral motor nerves, although it is not impossible that it was a non-destructive affection of the anterior hours.

We draw definite lines in theory between Landry's paralysis, progressive atrophy and degeneration of motor nerves. Nature, at times, obliterates our lines.

Louis Miller of Toledo reported a case of Tumor of the Cervical Cord.

C. W. Hitchcock of Detroit reported a case Sarcoma of the Cerebellum and Plinn E. Morse gave the pathological report on the same.

W. H. Riley of Battle Creek reported the following two cases illustrating the beginning of Degeneration of the Spinal Cord, the Result of Toxemia.

A REPORT OF TWO CASES ILLUSTRATING THE BEGINNING OF DEGENERATION OF THE LATERAL AND POSTERIOR COLUMNS OF THE SPINAL CORD, ATTENDANT WITH SYMPTOM OF TOXEMIA AND ANEMIA.

W. H. RILEY, M.D.
BATTLE CREEK, MICH.

Degeneration or Sclerosis of the lateral and posterior columns is one of the most common lesions of the spinal cord. This condition is usually described in text books and medical literature under the head of commercial sclerosis of the spinal cord. Many other names have been used to describe this pathological condition, or the symptoms which arise from it. The degeneration of the lateral and posterior columns of the cord is found present in a great many different diseases, and the nature of the lesion which finally leads up to and ends in the degeneration of the lateral and posterior columns of the cord is not the same in all of these different diseases. They all end, however, in practically the same way, namely, in a sclerosis of these columns of the cord. The lateral and posterior columns of the cord are found degenerated or sclerosed in many cases of general paresis. Erb was the first to point out that in the later stages of tabes dorsalis, the lateral, as well as the posterior columns of the cord are sometimes sclerosed. This condition may result from a diffuse myelitis, with resulting secondary ascending and descending degeneration in the posterior and lateral columns. It may follow a leptomeningitis. It may be present in multiple cerebral spinal sclerosis. It follows as a result of embrionic and hereditary defects, as is seen in the family ataxias, Fredricks ataxia. It is the result also usually in the later periods of life, of arterio sclerosis of the penetrating branches from the posterior spinal artery of the spinal cord. It may also come, as pointed out by Marie, from syphilitic endarteritis of these same branches. It follows also as the result of pellagra and other infections, such as influenza and malaria. It also is the result of certain chemical poisons, such as alcohol, lead, etc. It is very common in the anemias and cachectic states, and it is to this last named class that the two cases here reported are particularly related. The degeneration or sclerosis of the lateral and posterior columns of the spinal cord, as found in the anemias and cachectic states, have been more recently described, in our medical literature, particularly by the English, writers, under the head of "Sub-acute Degeneration of the Columns of the Spinal Cord" or "Sub-acute Sclerosis of the Columns of the Spinal Cord." Each of the above diseases differs from the rest to a greater or less degree in cause, symptomatology and pathology.

It is not the purpose of the writer here in reporting these two cases, to discuss in full or dwell at length upon the degeneration of the lateral and posterior columns of the spinal cord in the anemias and cachectic states. There are a few general statements, however, which may be proper to make in this connection. First of all, the writer thinks that cases of this kind should be separated from the large class above mentioned, and should be considered as a distinct entity, since they have quite an apparent cause and present quite a definite clinical picture, and have quite a definite pathological basis, which is different from the Sclerosis of the cord found in other diseases and other conditions.

For several years past the writer has seen a large number of cases of this kind. I cannot here give any definite statistics but judging from my experience this condition is one of the most frequent diseases that affects the nervous system, almost, if not quite, as frequent as tabes dorsalis, paralysis agitans, or the hemaplegias, resulting from vascular lesions of the brain.

The writer has seen these cases in all different stages of the disease, but it is especially the earlier stage that I desire here to call attention and which the two cases here reported are given for the purpose of reporting the symptoms of this disease in its very early stage.

In regard to the cause of this disease, no definite statement can be given. There is much evidence pointing toward the idea that it is the result of a toxemia, resulting from absorption of poisons from the intestinal tract, or from defective glandular activity, or from some other source. This is evidenced by a history of constipation, by frequent attacks of diarrhea, by the presence of chronic mucous colitis, with a large amount of indol in the stools and indican in the urine, by a diminution or absence of free hydrochloric acid in the stomach and by the examination of the blood, which shows a relative lymphocytosis and a diminution of the polymorphonuclear neutrophiles in the blood, as well as by other changes in the blood, usually indicating anemia to a greater or less degree.

It is a disease which occurs usually in middle life. In the writer's experience most cases are seen between the ages of 40 and 65. According to Turner and Thomas Granger Stewart, most cases are seen between the ages of 44 and 65. Rothmann says most cases occur between the ages of 50 and 65, fewer between 40 and 50 and the youngest case was 36 years of age.

In regard to the sex, opinion is divided, some claiming that more cases are seen in the male, others in the female. Out of twelve cases reported by Dana, nine were females. The writer has seen more cases in the male than in the female.

A neuropathic constitution is also present in many cases as an etiological factor.

Risien Russell divides the disease into three stages. The first stage, in which the prominent symptoms are paresthesias of the extremities, slight spastic or ataxic parapersis, with extensor plantar response. Second stage, in which the paraparesia increases into a spastic paraplegia, with increased reflexes.

ataxia, and anesthesia in the legs and trunk. Third stage, in which there is a flaccid paraplegia, with tendon reflexes absent, complete segmental anesthesia and paralysis of the sphincters, bed sores, and mental symptoms. According to the writer's experience, the order in which the symptoms appear is as follows: First, paresthesia of various sorts, in the feet and legs and hands. These paresthesias begin very often in the feet and later in the hands. They consist of numbness, burning, coldness, a feelin gof constriction, like a band about the legs, and other forms of paresthesia, hyperesthesia, increased sensitiveness in the soles of the feet and finger tips, especially to touch. Dull aching pains, stiffness in the legs and lower back, and sometimes darting sensations, like a current of electricity passing through the legs. These symptoms are all prominent in the legs; there may be some numbness and paresthesias in the fingers and arms, usually after they have first appeared in the legs. In the writer's experience these initial symptoms may continue for months or even years before any other symptoms appear, and they continue as the disease progresses, until they are entirely displaced by complete anesthesia and sensory loss.

It is of the greatest importance that these symptoms are recognized and fully appreciated in the early stage of this disease.

The next group of symptoms to appear, in the writer's experience, is a mild grade of spastic paraparesis, consisting of a light grade of weakness in the legs, with inco-ordination and ataxia, associated with increased knee jerk, Babinski toe phenomona and loss of the abdominal skin reflexes. This group of symptoms are associated with the sensory disturbances, which have appeared before them. These spastic paraparesias increase in severity to a well developed spastic paraplegia, with marked increased tendon reflexes and ataxia.

Following this group of symptoms is the cutaneous sensory loss, consisting of cutaneous anesthesia, to touch, pain and temperature, usually first appearing in the legs and segmental in distribution. Following this we have the flacid paralysis, the loss of reflexes, paralysis of the sphincters, bed sores, and complete anesthesia in the legs and trunk, limited to a definite level in the trunk, having a well defined segmental distribution in the trunk. And with this there is often stupor, mental weakness and finally death.

The two cases here reported are given for the purpose of calling attention to the symptoms present in the very early stages of this disease, and to emphasize the importance of recognizing their significance in the early stages.

CASE 1. Mr. F. C. M. (96493). Of German descent. 40 years of age. Manufacturer by occupation. Comes for treatment for "Rheumatism and stomach trouble." Examined November 19, 1913.

FAMILY HISTORY.

Father and mother still living and in good health. No brother living. Three brothers dead; two died in infancy, and one died at the age of 12 from "lack of blood." Three sisters living and all healthy. One sister died with consumption at the age of 22 or 23, caused by exposure to cold. Father formerly suffered with rheumatism for a number of years. No other hereditary diseases or traits in the family.

PERSONAL HISTORY.

HISTORY OF PREVIOUS DISEASE.—Patient had mumps when he was a child. Thinks he had no other of the infectious diseases during childhood. He had whooping cough three years ago. Made good recovery, with no bad results. Has had no other infectious diseases or illness of any kind previous to his present trouble. Has never had any injuries to his body, and no surgical operations. Has always been healthy.

HABITS.—Previous to four months ago patient was a heavy smoker. Smoked from twenty-five to thirty cigars a day; at present smokes one cigar occasionally. Has never used alcoholic liquors. No drug habit. Tea and coffee in moderation. Plain foods. Regular in his meals. Small eater.

HISTORY OF PRESENT ILLNESS.—His present illness began about two years ago, with numbness and coldness in both feet; this has continued up to the present. For some weeks past he has had some difficulty in walking and about this time there was also numbness in his hands. For several years he has had more or less trouble with his stomach, indigestion and constipation, and for some time past occasional attacks of diarrhea. He also has had dull aching pains in his legs for the last four or five months.

PRESENT SUBJECTIVE SYMPTOMS.

RESPIRATORY SYSTEM.—Negative.

CIRCULATORY SYSTEM.—Heart's action regular.

DIGESTIVE SYSTEM.—Appetite variable. Teeth in good condition. More or less indigestion. Bowels very constipated, and have been for a number of years. Obliged to take enemas and medicine to move bowels. Passes no blood. No hemorrhoids or piles, although he states that his rectum is sore at times.

GENITO-URINARY.—Denies syphilis. Gonorrhea fourteen years ago, which eventually caused a urethral stricture. Thinks he was cured.

NERVOUS SYMPTOMS.—At the present time he has numbness in his hands and in his feet and legs, dull aching pains in his legs, and a stiff feeling in his legs, and cannot walk as well as formerly. He is rather nervous and depressed mentally and worries considerably about his condition. Has no headache. Sleeps fairly well. He states that his taste, smell, hearing and vision are all normal.

PHYSICAL EXAMINATION.

GENERAL.—Patient is five feet, ten one-half inches tall. Weight in health 160 pounds. At present 148 pounds. Good size frame and skin rather pale and sallow. A few pimples scattered over the chest, back and shoulders. Is rather thin in flesh. Small amount of subcutaneous fat. Muscles small and muscle tone reduced. Right index finger somewhat deformed, otherwise bones and joints normal.

CHEST.—The chest is long and flattened. Bones of the chest are visible, Fossae in the neck deep. Thyroid and lymphatic glands not palpable. Physical examination of the lungs negative. Heart tones are diminished in intensity. No murmurs heard. Apex beat in normal position. Radial arteries are not palpable. The blood pressure varied from 96 to 104 systolic and from 50 to 62 diastolic.

ABDOMEN.—Abdomen flattened. Abdominal muscles weak and relaxed. Stomach and bowels somewhat prolapsed. No tenderness on pressure over the lower margin of the liver.

NERVOUS SYSTEM.—The cutaneous sensations are objectively normal to touch, pain, temperature, in the feet, hands, legs and all parts of the body. Smell, taste, hearing and vision all normal. Pupils normal in size, regular in outline and respond normally to light. Patient complains of numbness of feet, legs and both hands. Also of dull aching pains in the legs, burning sensations in the feet. The patient is able to walk about, but claims that he is some weak in the legs and cannot walk very far without becoming tired. There is no localized paralysis in the muscles of the body. Patient is able to move all the joints of his feet, legs, hands and arms. Muscular strength in the legs is somewhat below the normal. There is no abnormal movement, such as tremors, spasms or convulsions. Gait is somewhat stiff and a little awkward. He has a feeling of stiffness in both legs. The knee jerk is present in both legs and normal, or possibly slightly increased. There is no ankleclonous and no Babinski Toe Phenomena. The plantar and cremasteric and abdominal skin reflexes are all present and normal.

Two separate analyses of the urine, one made November 20, 1913 and the other January 2, 1914, showed that the kidneys were in a healthy condition, and the urine normal, except for the presence of some indolacetic acid, which was found present in the first test. Two separate analyses of the blood, made on different times, showed nothing of any special interest. While a third test showed a marked reduction in the red cells, reduction of white cells, and a high color index. Three separate analyses of the contents of the stomach showed the total acidity of the stomach very much reduced, and the total absence of free hydrochloric acid. The analysis of the stool showed the presence of strings of mucous and a number of putrefactive bacteria. Examination of the rectum and lower bowel showed the patient to be suffering from a

marked catarrhal colitis. Sphincter of the anus very tight.

It will be seen from the examination of this case that the only symptoms present relating to the nervous system, were the numbness in the hands, feet and legs, dull aching pains in the legs, some stiffness in the legs and inability to walk quite as well as formerly on account of the stiffness in the legs. Outside of this there were no abnormal symptoms of any kind relating to the nervous system.

The patient was put on a treatment consisting of regulation of diet, the use of various hydriatic remedies, massage, special exercise, various forms of electricity and special local treatments for the bowels. Under this treatment the patient made very substantial gain.

The patient left my care February 14, 1913. A note taken from my records of the case on the day of February 14, 1913, states that the pains in the hips and legs are much improved. The numbness and burning sensation in the feet is improved. The patient feels stronger. The stiffness in the legs has improved. He has gained 27 pounds in weight and goes away feeling much better.

The patient returned and came under my care again September 4, 1914. Since he was last here he has been engaged in business part of the time and part of the time resting in San Diego, Calif. His general health has kept in fairly good condition, except this condition of the legs, for which he was treated before. He thinks the symptoms in his legs have not improved any since he has been away and very recently they have been getting worse. Thinks he is weaker in the legs than when under my care before. The numbness in the feet and legs is also increased in severity. Is able to walk very little, largely on account of the sensory disturbances in his feet and legs. Usually goes about in a wheel chair. Has dull pain in the legs. Complains of considerable pain and discomfort in the coccygeal region. Is more or less depressed mentally. Appetite is good. Bowels are still constipated. Has had four attacks of diarrhea in last few months. He also has some difficulty in passing his urine and at times difficulty in retaining his urine.

PHYSICAL EXAMINATION.

HIS PHYSICAL EXAMINATION shows nothing new but what was found in the previous examination, except the examination of his nervous system. The patient is now much weaker in his legs, can only walk a very short distance without help; goes about in a wheel chair most of the time. Is able to move all of the joints in his legs, but the movements are some weak. Also able to perform all the normal movements of the hands and arms. There is no weakness in the hands or arms. There is no tremor or spasm or any abnormal movements of any kind. Knee jerk is increased in both legs. There is no ankleclonous. There is Babinski and Chaddock's Toe Phenomena present in both feet. He has a weak and somewhat stiff spastic gait. Has a slight degree of rigidity and spasticity of the muscles of the lower extremities. Pupils are normal in size, regular in outline and respond normally to light and accommodation. He still has the numbness in his feet and hands, dull aching pains in his feet and legs and feeling of stiffness in the legs. The cutaneous sensations of touch, pain and temperature are objectively normal. There is no anesthesia. The special senses are all normal, as previously reported. Patient had difficulty in emptying bladder. The blood pressure at this time varied from 88 to 105 systolic and from 66 to 76 diastolic.

The analysis of the urine showed no disease of the kidneys, and nothing wrong with the urine except the presence of some indolacetic acid. Several analyses of the contents of the stomach showed the absence of free hydrochloric acid. The analysis of the stool showed considerable mucous present, a large number of putrefactive bacteria and considerable indol. Two Wassermann tests of the blood serum, taken at different times, were negative. Four or five different examinations of the blood showed the hemoglobin, the red cells and the white cells all reduced, with a high color index, above one, also the differential count showed a relative leucocytosis with a diminution of the polymorphonuclear neutrophiles, and the presence of macrocytes, microcytes and poikilocytes. (The blood reports are herewith given below in detail). These findings in the analysis of the blood are very significant. They illustrate the changes which are often found in the blood in this class of cases, and indicate the early stages of pernicious anemia. The case illustrates nicely, I think both the nervous and other symptoms of this very serious disease, as seen in the very early and later stages of the disease.

When the patient was first examined the only symptoms found were the subjective disturbances of sensation, consisting of various paresthesias, like numbness in the feet, legs and hands, burning in the feet, aching pains in the legs, with some stiffness. There was no other symptom indicating any disturbance of the nervous system, and it is easy to understand how this might not be considered of sufficient importance to indicate the beginning of any serious organic disease of the spinal cord.

When the patient was seen ten months later he not only had all of the subjective sensory symptoms which were found present in the first examination, but in addition to this the increased knee jerk, the presence of Babinski and Chaddock Phenomena and quite a decided weakness in the legs, with a stiff gait, which indicated very clearly and definitely that he had an organic disease of the spinal cord, which undoubtedly was present to some degree, at least in the sensory tracts of the spinal cord at the time of the first examination, ten months previous. The examination of the blood, with the regular count and also differential count, throws much light upon these cases, as it indicates the presence of a toxemia and a beginning of pernicious anemia, which is often present in this class of cases. The constipation, attacks of diarrhea, mucous colitis and the absence of free hydrochloric acid in the stomach and the low blood pressure are also significant symptoms and help to form the clinical picture of this disease.

CASE 2. Mr. S. C. T. (92089). Aged 48. Married. American by birth. Occupation, ice manufacturer. Examination on July 5, 1914.

FAMILY HISTORY.

Negative.

HISTORY OF PREVIOUS ILLNESS.

The patient states that he has always enjoyed good health and never been sick up to the present time.

HABITS.

Never used tobacco or alcoholic liquor. Uses coffee once a day in moderation. Is fond of sweets and condiments.

HISTORY OF PRESENT ILLNESS.

Patient states that his normal weight is 137 pounds, but for the last two years has been gradually losing flesh until at the present time he weighs 40 pounds less, or 97 pounds, net. Last October was taken sick with carbuncles in the lower part of the back of his neck. Since then he has been suffering with carbuncles coming and going. At present he is nearly well of his last crop. About three weeks ago he noticed that he was not very steady on his feet, and on walking would tend to stagger and stumble to a moderate degree. At the same time his feet became very sensitive to touch. Tips of the fingers of both hands and both feet and legs were very sensitive to light touch (hyperesthesia). When he strikes an object hard or presses hard with his hands or feet, it does not distress him so much. Sometimes this hypersensitive condition of the hands and feet is very distressing, and almost unbearable, and at times extends up to his legs and about the lower part of the abdomen. There is also a band contricting sensation about the lower part of the abdomen, which he has had for two or three weeks past. He also has sort of a sharp, cutting pain along the perineum at times. Has dull aching pains in the lower part of the abdomen, which he describes, as bearing or dragging-down sensations, and also a peculiar feeling about the legs, which he describes as tight, or constricting feeling, and he likens it to having his leg wrapped tight with an adhesive plaster. Also at times he has sensations like electric waves running down his hips to the feet in both legs. He also has sensations of coldness in the bottom of his feet at times. Also has sensations as though his hands were larger than normal. These symptoms have been present only for the last three weeks. In addition to this he is weak on his legs and cannot walk very far without becoming tired and has rather ataxic gai.t

PRESENT CONDITION.

RESPIRATORY.—For the last ten years coughed, with thick yellow expectoration; worse on lying down. Some catarrh of the nose and throat.

CIRCULATORY.—Heart's action regular. Sometimes feeling of distress about the heart. No shortness of breath. Feels as though walking on ice.

DIGESTIVE.—Appetite poor. Teeth in good condition. Considerable indigestion. Bowels constipated all his life. No hemorrhoids. Passes no blood or mucous.

GENITO-URINARY.—Gives no history of any venereal disease. In passing his urine the sensation is not normal.

NERVOUS.—He has all of the above mentioned nervous symptoms at the present time. He has this numbness in his feet, legs and hands. Sensation of coldness in his feet. Dull, aching pains in his legs. Constriction sensation about abdomen and feeling of stiffness in the legs, and also a band sensation about the legs. He feels tired and exhausted all the time. Says he cannot walk but a short distance. Is more or less nervous and depressed. He sleeps fairly well. Special organs are all normal.

GENERAL PHYSICAL EXAMINATION.

Patient is five feet, nine inches high. Weight in health 137 pounds. Weight at the present time 97 pounds. He is undersized. Skin is pale and rather dry. Has two or three scars in the lumbar and sacral region as result of recent carbuncles. Is extremely thin in flesh. Emaciated. Little or no sub-cutaneous flesh. Muscles very small and shrunken. Muscle tone reduced. Slight spastic contraction of both knees, more marked in the left. Bones and joints are normal, except for well marked posterior curvature of spine, involving the upper and middle dorsal region. Moderately stooped posture.

CHEST.—Chest is small and deformed on account of posterior curvature of the spinal column. Bones of the chest visible and prominent. Fossa in neck deep. Respiratory excursion is shallow. Normal vesicular murmur diminished.

CIRCULATORY.—Heart tones are diminished in intensity. No murmurs heard. Apex beat in normal position in fifth interspace. Radial arteries somewhat palpable; also small. Blood pressure 98-110 systolic and 58-80 diastolic.

ABDOMEN.—Abdomen is small and shrunken. Abdominal muscles are weak and relaxed. Stomach and bowels are pro-

lapsed. No tenderness on pressure over abdomen. Hepatic and splenic dullness normal. No tenderness on pressure over the lower margin of the liver.

GENITO-URINARY.—Negative.

NERVOUS SYSTEM.—Patient has little endurance. Gets tired in walking but a short distance. Has difficulty in walking. Gait somewhat inco-ordinated and slightly ataxic and weak. Is able to perform all the normal movements of the lower and upper extremities, but the movements of the different joints of the legs are weak and there is also some weakness in the hands and arms. There are no abnormal movements, except some incoordination and ataxia in the legs. The knee jerk is very much diminished in both legs, more so in the right. Tendo-Achilles reflex is present, but diminished. Babinski Toe Phenomena present in both feet. There is no ankleclonous. The body sways considerably when standing, with the feet together and eyes closed. He walks a straight line with the eyes open but staggers considerably from the line when the eyes are closed. Pupils are normal in size, regular in outline and respond normally to light and accommodation.

He has all the subjective sensory symptoms above mentioned, such as numbness in the feet, legs and hands. Feeling of coldness in the feet, as though his feet were on ice. Burning sensation over the sacro and lumbar regions of the back. Binding and constricting sensation from the feet up the legs to the level of the umbilicus. Drawing band sensation about the trunk. Dull, aching pains in the legs. Hyperesthesia to touch in his feet, hands and legs. Sensation like electricity shooting down his legs. The cutaneous sensations are objectively normal to touch, pain and temperature. There is no anesthesia to any of these. The plantar reflex is increased. Cremasteric absent and the abdominal only very slightly present. The sphincter muscles of the bladder and rectum are competent. Empties bladder slowly.

Special senses of taste, smell and hearing and vision are all normal.

The examination of the urine, made at three different times, showed nothing that indicated any organic disease of the kidneys. There is a large amount of indican present in each of the three different analysis. Analysis of the feces shows the presence of a large number of putrefactive bacteria and indol, and a local examination of the rectum showed a catharrhal inflammation of the mucous membrane of the lower bowel. The examination of the blood at four different examinations, taken at different times, showed marked reduction of hemoglobin, red cells and a high color index. Differential count shows relative leucocytosis, with a diminution of the polymorphonuclear neutrophiles and a presence of microcytes and macrocytes and poikilocytes in two different tests, and also shows a large variation in the size of the red cells, with polycromatophelia. In other words, the examination of the blood shows the characteristic changes of the blood, such as is found in the early stages of pernicious anemia.

The diagnosis made in this case was the beginning of degeneration of the lateral and posterior columns of the spinal cord, with toxemia and an early stage of pernicious anemia.

These two cases are simply reported here as illustrative cases. Since I have started to write this report three other cases of this disease, in its very early stages, have come under my observation, which illustrate the early symptoms of this disease even better than either of these cases. They therefore represent a class which is quite large. In the study of these two cases and others we may note the following:

In one case, the early symptoms consist only of paresthesias, and pains in the legs, and hands, which continued for several months before any other symptoms appeared, and among the very early objective symptoms to appear was the Babinski and Chaddock's Toe Phenomona, with the absence of the abdominal skin reflexes. The second case illustrates some symptoms which are not usually seen in very early stages. Usually in the early stages of this disease the knee jerk and other deep reflexes are increased. There are a smaller number of cases in which the knee jerk and deep reflexes are diminished or absent in the early stages. In the second case here reported the knee jerk and deep reflexes were diminished, and therefore this case is somewhat unusual, at least in this respect.

Further I wish to call attention to the fact that these cases, in the very early stages of the disease should be regarded as serious and that the very early sensory disturbances should be considered as indicating a probable beginning of a degeneration of the lateral and posterior columns of the cord, and should receive careful and conscientious treatment and should be watched carefully from the very start.

I wish also to emphasize the value of the presence of Babinski and Chaddock's Phenomona and the absence of the abdominal skin reflexes, as important objective signs of this disease, which appear early in the disease, and continue with the disease through its several stages, to its termination, or at least to near its termination.

This class of cases in the early stages also emphasize the importance of the need of making a thorough examination of the whole body of the patient when seeking to find the nature of a nervous trouble. The examination of the blood, urine, feces and local examination of the bowels, very often throws very valuable light and helps materially in determining the nature of the nervous disorder of these cases in the very early stages.

When a patient comes to us between the ages of 40 and 65 years of age, complaining of burning, numbness, stiffness and aches and pains in his legs, and with perhaps some slight numbness in his hands, giving a history of having constipation of the bowels for a number of years, with recent attacks of diarrhea, with a skin that is pale, and sallow, and we find upon examination a diminution or absence of hydrochloric acid, a large number of putrefactive bacteria and indol in the feces and evidence of a catarrhal colitis, the presence of indican and other toxins in the urine, and a moderate reduction of the red and white cells of hemoglobin in the blood, with a high color index and relative leucocytosis, with polymorphonuclear neutrophiles reduced. In a case like this, when we seek to make a diagnosis of the nervous side of the case and determine what is the cause of the nervous symptoms in the extremties, we may reasonable conclude that the patient is suffering from beginning Degeneration of the Posterior and Lateral Columns of the Spinal Cord and the case should be regarded as the beginning of a serious disease of the nervous system.

The Society then adjourned.

GUY L. CONNOR, Secretary.
703 Washington Arcade, Detroit.

The Journal
OF THE
Michigan State Medical Society

ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

PUBLICATION COMMITTEE

Arthur M. Hume, Chairman .....Owosso.
A. P. Biddle .....Detroit.
W. J. Kay .....Lapeer.
W. J. DuBois .....Grand Rapids.

EDITOR
FREDERICK C. WARNSHUIS
Grand Rapids, Mich.

All communications relative to exchanges, books for review, manuscripts, news, advertising, and subscriptions are to be addressed to Frederick C. Warnshuis, M. D., 91 Monroe Ave., Grand Rapids, Mich.

The Society does not hold itself responsible for opinions expressed in original papers, discussions, communications, or advertisements.

Subscription Price—$3.50 per year, in advance.

DECEMBER

Editorials

UNDER THE HOLLY BOUGH.

Ye who have scorned each other,
Or injured friend or brother,
In this fast-fading year;
Ye who, by word or deed,
Have made a kind heart bleed,
Come gather here.

Let sinned against, and sinning,
Forget their strife's beginning,
And join in friendship now;
Be links no longer broken,
Be sweet forgiveness spoken,
Under the holly bough.

Ye who have loved each other,
Sister and friend and brother,
In this fast-fading year;
Mother and sire and child,
Young man and maiden mild,
Come gather here;
And let your hearts grow fonder,
As memory shall ponder
Each past unbroken vow,
Old loves and younger wooing
Are sweet in the renewing
Under the holly bough.

Ye who have nourished sadness,
Estranged from hope and gladness,
In this fast-fading year,
Ye, who o'erburdened mind,
Made aliens from your kind,
Come gather here.
Let not the useless sorrow
Pursue you night and morrow,
If e'er you hoped, hope now—
Take heart;—uncloud your faces,
And join in our embraces,
Under the holly bough.

—CHARLES MACKAY.

CEREBRO-SPINAL SYPHILIS AND ITS TREATMENT.

The degenerative type of nervous syphilis, paresis and tabes, are grave manifestations of syphilis. Keyes reports that out of a series 504 cases of nervous syphilis, 60 patients died and 175 were permanently disabled in varying degrees.

Recent investigation, especially that pertaining to treatment, has most radically changed our knowledge of yesterday. Today the classification of nervous syphilis is no more that of parasyphilis but that of definite degenerative changes in the cord and brain, directly due to the active living organism of the disease.

The demonstrating of the *spirochaeta pallida* in the brain of paretics and the spinal fluid of other nerve syphilitic conditions has been the stimulus for direct medication to the areas of active degenerative disease.

This form of syphilis is in the patient who often has no knowledge of infection or the patient who only had a sore of short duration.

There is a growing belief, as yet unproven bacteriologically, though clinically more suggestive, that there are different strains of the spirochaete which possess selective action for different structures in tissues of the human body.

Therefore, the patient who manifests cutaneous, periostial, glandular syphilis, or involvements of mucous membranes, rarely ever develops later nerve degeneration, paresis or tabes.

Old forms of treatment in developing tabes or paresis was on the whole most discouraging and hopeless in a large percentage of cases. Often an arrest of the disease was thought to be brought about, improven clinical knowledge being our only evidence. The inability of our treatment to reach the diseased area we now know to be the cause of the failure.

Experimentation has proven that through the spinal fluid we can now directly destroy the organism and through this medium indirectly reach the brain.

Clinical reports, now coming from many sources, of the results following intraspinal treatment of nervous syphilis now covering a period of over two years, are of such startling character as to be almost unbelievable. Paretic patients who were in institutions are again able to carry on normal business transactions;

tabetic sufferers again controlling pelvic function which had been entirely lost for long periods, accompanied by most encouraging gradual improvement of all here-to-fore deranged sensations. Not all are so startlingly improved, but it is an exception to a most constant observation that the early tabes patient is not improved in a varying degree. Clinical improvement goes hand in hand with the spinal serological improvement. The salvarsanized serum method is the safest and seems as effectual as the direct method. This new method of treatment of nervous syphilis is a distinct advance and will be productive of a tremendous amount of good in the relief of a most hopeless disease.

H. R. VARNEY.

POISONOUS FLY PAPER.

There are a surprisingly large number of cases of poisoning of children from one to six years old from the use of arsenical fly poisons. Formerly blotting paper soaked with arsenic was much used. A little piece of this was put in an open saucer with some water and a little sugar. More recently shallow boxes of tin with a wick through the top have come into use, but on account of the habit of children of putting everything to their lips these seem to be as dangerous as the open saucer of poisoned water. In South Africa the authorities have forbidden the sale, except by licensed chemists, of certain arsenical fly destroyers, particularly the tin boxes which have a wick or wicks through which the poison is drawn. The fact that sugar is added to draw the flies makes these boxes especially dangerous to young children.

From the first of July to October 15 the press of a few states reported forty-five cases of poisoning of children from the use of fly poisons, nine resulting fatally within a few hours. In a number of cases the child at the time the report was made was still very sick. In other cases the child was reported as having fully recovered. The reports cover only a few states, so are incomplete. Some cases of poisoning from the use of fly poisons are doubtless never reported, for it is difficult, perhaps impossible, for even an experienced physician to distinguish a case of arsenical poisoning from cholera infantum, the symptoms being so similar. How many children have been poisoned from these fly poisons and the deaths ascribed to cholera infantum can never be known. The cases reported are all children from slightly less than a year old to six or seven years old. In many cases these children are not old enough to tell what they have taken if questioned about their illness. and unless seen taking the poison the chances are that the cause of the child's illness will never be known and it will be thought the child had cholera infantum. The danger is especially great to the children of the foreign born for as is well known many of the foreigners are slow to call medical aid in case of children's ailments. In country districts, where it often takes several hours to get a physician, it is especially dangerous to use fly poisons.

These fly poisons are often exposed on the window sill because flies are attracted to the light. Babies also are attracted by the light and the window sill being in reach is therefore the most dangerous place to expose poisonous fly destroyers of any kind.

There are as efficient and more sanitary ways of catching or killing flies, and fly poisons if used at all should not be used in any home where there are children or where children may visit.

We have copies of these newspaper clippings on file and will be glad to exhibit them to anyone interested.

Certainly in our propagandas for health conservation, child betterment and educational movements this peril should be recognized and a warning be issued so that the coming summer does not witness a repetition of these fatalities and accidents that are wholly preventable. Arsenical fly destroying devices are as dangerous as the phosphorus match. They should be abolished.

THE TYPE OF PROGRAM THAT WOULD BE OF MOST VALUE AND CREATE THE GREATEST INTEREST AND ITS PRESENTATION.

When a man is elected Secretary of a County Medical Society, he becomes at once aware that he has problems and troubles of his own and the question with him is how to solve these problems and how to eliminate these troubles. One need not have been very long in the office of secretary, before he makes up his mind that the greatest problem confronting him *is the doctor* himself. There is no doubt that he is a creature of environment, and that this environment is a little removed from things earthly. Just as absorption in any great idea transforms a man and sets him walking, so to speak, among the clouds, so it is that medical men being thus separated slightly from material things become poor business men. That is at the same time their bane and their virtue, and it is the circumstance which hindered the progress of medical organization lo these many years. After all the doctor is a humanly human man. Will Carleton well describes him as:

"The brave old virtuous doctor
The good old faulty doctor."

We as secretaries have fallen upon goodly times due to the good work of our predecessors.

And so it happens that the great problem "the doctor himself" has been mostly solved by them. But there still remains much for us to do. For instance:

The county society secretary has to decide where the meeting place shall be. He is not long in office before the various schemes of the medical politicians are forced upon his attention. He also becomes aware that in every community there are certain "medical cliques" pulling in different directions. So that whether he acts as pacificator or buffer the result is that "though slightly disfigured, he is still in the ring." It is unfortunate that the County Societies have such a small sum of money at their disposal. In my own society of forty members we have a yearly total of forty dollars. Now forty dollars will give forty men a fair outing for one day a year. Actually the expense of each monthly meeting is borne by the members in the town where the meeting is held, whereas it should be met by the society as a whole, or, failing that, by all who are present.

It may be safely said that the best place for a county society to meet is in a public hall or hotel. The conditions spoken of above make the selection of a physician's office not desirable. Physicians are the most independent men in the world, and also the most finicky. Therefore, the public hall or room is the one of choice. Here the spirit of independence is not lost, indeed the spirit of criticism is fostered, and there is no gainsaying the fact that the most interesting and profitable meetings are those where the "give and take" principle prevails.

What is the reason that doctors located in places from ten to twenty miles or more from the place of meeting will make sacrifices to be present? "Man," saith the sage, "Is a gregarious animal." Now this particular man who is called a doctor may settle in a place which is so small that it can only support one to three doctors. Invariably he will find that even that small field will have its share of advocates of the various fads and cults of these degenerate days. He now begins to feel the great responsibility attached to the practice of medicine and after he has had a few of the jolts that come to us all he becomes aware that there is something in the philosophy of practice of which he was not aware. Here is where he either gets off or he wakes up. If he wakes up he is in a state of mind willing to begin to seek information from others, either openly or by absorption, and that leads to appreciation of the other fellow. Maybe to his surprise his competitor has many stout friends who sing his praises in and out of season. All of these things make a great impress upon his *ego* and he soon yearns for help. This help is at hand—The County Medical Society.

It is indeed fortunate for the medical man that being a man of more or less general education he has within himself resources for his own entertainment. The social instinct is strong in the make-up of medical men and grows stronger with age since a long and intimate acquaintance with the tragedies of life must produce a rebound or an insanity. A reporter, in describing a gathering of medical men spoke of "these serious-faced but jovial men." Here, again, he is in need of help and the help is at hand—The County Medical Society.

As all roads led to Rome, so it may be said of the events in the life of the practitioner, *all roads lead or ought to lead to his County Medical Society.* Here is the stimulant for his professional career; here is nourishment for his educational training; here is backing for his moral sentiments and here is the wine of joy for his social instincts. Are not these sufficient answers to the question at the head of this article? Of course the member will go miles and miles to the society meeting. He marks that day as a red letter day in the monthly grind. And he has naught but pity for the unsocial wretch who keeps his nose always to the grindstone, sufficient unto himself, and thinking that knowledge will die with him.

What about the social and amusement side of the County Society? Once, while talking with Dr. McCormick, I said that it was first my endeavor as councillor to appeal to the social instincts; in other words to "feed the brute," and he thought that that might be a very good idea. Of course it depend upon the personnel of the Society as to what kind of amusement should be offered. Our own society has had a variety of entertainments—several times we met in a club room where there were billiard and pool tables. Other times we adjourned to a bowling alley and formed teams; again, we go to a theater-play or the "movies;" all these conveniences are now in the small town. Twice have we been entertained by the camps, far in the woods, of members, staying overnight. We have been royally entertained at model farms, and at public institutions, and we visit *with* or *without* invitations the very small towns in the county. With all these social means of enjoyment given the members, *he who refuses them must indeed be shortsighted.* I firmly believe that if social entertainment and light amusement be eliminated in the business of a society, that society will die of dry-rot.

All physicians are epicures in a way, and love to eat good food. Often when together the "Dutch Lunch" serves them better than the "banquet." All of these things are, after all, only the means of revealing ourselves one to another. In retrospection we revise our estimate of this or that one and even our own self is sometimes revealed to ourself in an unexpected light.

Every County Society has its own problems to meet and solve. My own society—and I speak now of the county with small towns scattered through it—has members located over a radius of thirty miles and yet never lacks for attendance. This society has forty members, and while experience shows that a profitable meeting may be held with six or seven, we never have less than fifteen or twenty. We may ask ourselves what it is that induces these doctors at the location ten or thirty miles away to come to the meeting place when they know they will have to stay all night or spend the remainder of the night in getting home. He knows before he starts that he is not going to hear or see some men of national reputation, or be shown the technic of some original research work. And still he comes. Why?

To return to our society problem. This problem is to get members to prepare papers. We know that it takes time and work for any man to write a paper. The trouble appears to be that a man will put off the work until the last day and then he finds more material than he can assimilate in a short time, and so throws up the task. To be sure if one has a thorough knowledge of his subject; some training and a bold front he can present his "paper" acceptably in an extemporaneous talk. However, a talk, while impressive to those who hear it, is not generally couched in as finished sentences and as pleasing periods as a written utterance. Besides, unless a stenographer is at hand, only those present can hear the address, and the benefit to the profession at large through the medical press is lost. But for all these drawbacks the well thought out extemporaneous talk is a life saver for the County Society, and should be cultivated and encouraged.

"The world do move" and so does the medical profession. Our loyalty and our conviction forbids us to admit that it moves in any but the right direction—the direction which inures to the benefit of the patient. Even so, *the direction in which it moves to the benefit of the physician is no less marked.* These marked changes began with the adoption of the present form of application for membership in the County Medical Society, by which one simply "agrees to support its Constitution and By-Laws, and the Code of Ethics of the American Medical Association."

Has this "letting down the bars," so to speak, been of advantage to the profession and to the public? Listen to this from the press:

"NEW CLUB HOUSE—Physicians of Rochester are planning to purchase, for about $25,000, a building to be used as a club house. The associations which are fostering this enterprise are the Monroe County Medical Society, the Rochester Pathological Society, the Rochester Acadamy of Medicine, the Rochester Hospital Medical Society, the Rochester Homeopathic Medical Society, the Rochester Hahnemann Medical Society and the Blackwell Medical Society."

What's the answer? Evidently the eternal verities of medicine as we knew them are subject to revisions. It is well that it is so. A prophetic outlook on twentieth century medicine might be incomprehensible to us and we might not take it if we could. It is sufficient for us to believe that those tireless workers who brought about the present organization of the medical profession builded well, even better than they knew. They showed astuteness in making the County Medical Society the unit of the superstructure. It goes without saying that every eligible medical man should regard the county society as the apple of his eye. Not only should he be a very active member himself but he should see to it that his influence was used to get new members. Occasionally one finds an eligible man who refuses for one reason or another to become a member. These reasons are always trivial and beg the question. No member should be undecided in his own mind as to what consideration he should give such men in the referring of patients, recommendations for life insurance examiners, etc. In my humble opinion there is something wrong in the moral and intellectual make up of such men and they should be made to feel that they stand alone.

THEODORE A. FELCH,
Secretary Marquette-Alger County Medical Society.

Editorial Comments

The committee that was appointed to revise the fee-schedule that is to serve as a guide in making charges for services rendered in connection with the Workmen's Compensation Act will gladly receive suggestions from any of the members. The committee also desires to remind the members that before this schedule is finally adopted it will be submitted to the various county societies for criticisms and comment.

In making such comments and criticisms it must be remembered that certain provisions of the state law must be complied with and cannot be arbitarily ignored. There are two sides to the question, the professional and the legal. Correspondence should be addressed to C. B. Stockwell of Port Huron.

Our January issue will contain all the papers and discussions of the section on Ophthalmology and Oto-Laryngology as they were presented at the last annual meeting. It will be an Eye, Ear, Nose and Throat number. It promises to be a most interesting and instructive issue.

A certain medical publication recommends that in view of the European war and its in-

fluences as a causative factor of business depression and financial stringency that physicians exert themselves to collect their outstanding accounts, pay all their debts in so far as possible, buy nothing unless absolutely necessary, incur no further indebtedness and "sit tight" on what money they have. Such a calamity howl is uncalled for. America's golden opportunity is at hand. An opportunity that should be seized and utilized to its fullest extent. While the advice advanced is consistent with business axioms and should be observed at all times the last clause is pernicious. Collect your bills, pay your debts, keep out of debt and do not waste your money, most certainly, but having done so do not "sit tight" and bury your funds in an old tin can. Think and talk less of war. Be alert for successful and safe investments and so maintain a business confidence and activity. Plan and work out the new problems that confront you and force a successful issue without a preconceived conclusion that all the world is out of sorts and that whatever you attempt is bound to result in failure. The purpose and the spirit with which you set out will determine the result and if you want a failure just continue howling danger, war depression, lost confidence etc. Our country's opportunities were never more promising, and it is ours to aid in placing it and its people's industries in the front rank of all the world. Edison, when he found his foreign supply of carbolic acid shut off, did not close shop and bemoan the incident. On the contrary, he worked night and day and in a short time he had surmounted the difficulty and was making his own carbolic acid. You can do the same, to rise above the obstacles that may be threatening your progress. Work, hard work, optimism and faith is what is required. See that the progressive spirit remains uppermost. Strangle the calamity wail; do not go moping about. The doughnut is what we want and not the hole. Have the purpose to bring about better times and better times will surely come.

Do you need accident, health or liability insurance? Are you in the market for office equipment? Are you searching for a health food possessing proven therapeutic value? Do you want prompt and reliable reports upon the specimens that you send in for laboratory analysis? Are you satisfied with the drugs you purchase? Have you longed for a reliable mineral cathartic water? Do you wish to know where there is a good sanitarium to which you can send your patient? These and many of your other wants can be supplied by our advertisers. They are reliable firms and merit your business in preference to all other firms. *The Journal* is sorely in need of this co-operation from every member. Will you not be one of 1,000 members who will write to the following advertisers this month?: Central Business Men's Insurance Co., Radium Chemical Co., Abilena Water, Uncle Sam's Breakfast Food Co., Storm Binder, Horlick's Malted Milk Co., Mead, Johnson & Co., The Palisade Manufacturing Co., The DePree Chemical Co. Ten postal cards will do it and only a half an hour of your time is necessary. Boost with us.

At a recent meeting of the osteopaths of this state a resolution was passed requesting representation on the State Board of Health. We have been trying to conceive how and wherein the representatives of this cult have exercised any influence or brought about anything that has served to enhance or conserve public health. We are unable to cite a single instance. Neither are we able to perceive how the efficiency of the health board will be increased by osteopathic representation thereon. Possibly they are imbued with the belief that by causing a universal and periodical manipulation of certain vertebra that epidemics may be thus prevented. Undoubtedly they likewise hold that massage of the spine and joints will effectively immunize the public and prevent typhoid, small-pox, diphtheria, scarlet fever and the other contagious diseases and cause the inhabitants of our state to ignore and violate all preventive measures.

When epidemics threaten, when emergencies arise wherein the public health and welfare are at stake, where disaster occurs and administration to the physical needs of man is needed, in all and every instances when counties, states and nations have needed assistance in administering to those who are in dire need those in authority have directed their appeals to recognized physicians. Civic heads have long recognized that regular physicians and surgeons were alone capable of rendering the effective service that was required. Until the representatives of recently created "pathies" demonstrate their capability to meet such emergencies and their preparedness to effectively and successfully combat and prevent contagion, not until then should they resolve and ask for that which would be folly to grant.

Please do not forget or neglect to write to some of the advertisers in this issue. They are reliable firms and are capable of aiding you in the practice of your profession.

With the beginning of the new year there will occur the bi-yearly session of our legislature. Judged by past experiences that body will probably have presented to it several bills bearing upon medical and health problems. Some of them will be most desirable and constructive legislation while others will attempt

to accomplish the undoing of past enactments of proven merit. During its session it behooves all of us to remain alert and willing to exert ourselves to forestall any destructive conniving on the part of unscrupulous individuals and representatives of questionable pseudo-medical cults and commercial corporations.

In this connection we desire to state that the mere passing of a resolution, while of some value, is wholly inadequate to either secure or prevent legislative enactments. To be effective personal influence and efforts must be exhibited. To exert a wholesome influence and attain the desired ends each county society should appoint a legislative committee. This committee should, when appealed to, promptly interview and enlighten the representatives and senators of their district with the true facts of the points at issue. Don't send them resolutions, see them and talk to them and thus by honorable methods and influence secure their witnessed promises to support desirable and defeat undesirable bills that have a bearing upon public health or medical legislation. Our whole hearted energy and not mere idle resolutions must be universally exhibited. The task is too great for a few individuals. Will your society arrange at its next meeting for this this state of watchful preparedness and so be able to rally to the support of our State Legislative Committee?

This issue completes volume thirteen of our publication. The index of its contents is contained in this number. Without further comment we submit this volume to our members. It is for you individually to appraise its merit and the value it has been to you in the practice of your profession. It is yours also to dictate its future. Acknowledging that mistakes have been committed and errors overlooked we can but offer human fallibility as our only excuse. We court your criticism, suggestions and advice so that we may be aided to make volume fourteen of greater value to all our members. Lastly don't forget to patronize our advertisers and write to ten or more of them before January.

Herewith we are submitting for the information of our readers a frank and reliable statement of interesting facts concerning certain medical journals that pose as "leaders" in the field of medical journalism. These comments are taken from a recent issue of *The Journal of the American Medical Association.* Undoubtedly the editorial or business editors of these publications that have been holding an exalted opinion of themselves and have persistently been tossing bouquets at themselves will rise up in "assumed holiness" and rant forth in a series of invectives that wil be punctuated with expressions of "Medical Trusts," "A.M.A. Gang," "Journal Puppets," and other similar imaginative and manufactured phrases in futile defence of their existence. The fact will nevertheless remain that they do not compose the "Big Six" leaders of all reputable medical journals but that they are the "Big Six" medical journals who lead all others in the questionable and unreliable nature of their advertising pages.

The day of deception, fraud, fakery, and unreliability is past and they who stoop to such levels must realize that their existence is but short lived. Any medical publication that has intrinsic value cannot afford to condone or abet the thrusting upon the profession or the public of those proprietary preparations which are manufactured for the sake of the almighty dollar and not because they possess inherent value. The statements contained in their advertising pages must be as reliable and dependable as are those that are found in the reading pages. A publication that is not honest with its readers in its every avenue of contact merits publicity and the revealing of its nefarious methods. It is indeed regrettable that such conditions exist; we would that the light that governs the members of the American Advertising Clubs' Association could but enter and govern those who direct the policies of these medical publications—to publish only honest ads. It is hoped that the information herewith presented will cause a sane reflection on the part of our readers and that the "come-backs" of these publishers be read with the foregoing in mind. Personal malice did not inspire the exposure.

THE "BIG SIX."

Six Reasons for the Perpetuation of the Proprietary Evil.

"The Big Six" is the modest name assumed by the Associated Medical Publishers in describing the half-dozen medical journals that comprise their association. The Associated Medical Publishers is an organization evidently composed of the owners and publishers of the following journals:

American Journal of Clinical Medicine, Chicago: Essentially a house organ for the Abbott Alkaloidal Company. Was established in 1894, its original name being the Alkaloidal Clinic.

American Journal of Surgery, New York: Originally established in St. Louis, but when purchased by its present owner, was transferred to New York City. It owner and managing editor was, previous to the time he purchased the American Journal of Surgery, advertising manager for another surgical journal. He still is, essentially, an advertising man, and is said to act as advertising director of a Massachusetts proprietary house.

American Medicine, Burlington, Vt.: Originally established as a weekly in Philadelphia. When purchased by its present owner, it was changed to a monthly, and the place of publication transferred to Burlington, Vt., although its principal offices are in New York City. Its present owner and managing editor conducts an advertising agency that handles a number of proprietary medicine accounts.

Insterstate Medical Journal, St. Louis: Practically owned and controlled by a physician who conducts an advertising agency which handles, or has handled, a number of advertising accounts of proprietaries.

Medical Council, Philadelphia: Was established in 1895 and is at present owned and controlled by the widow of its founder.

Therapeutic Gazette, Detroit: Essentially a house organ for Parke, Davis & Company and is published by the general manager of this company.

The Associated Medical Publishers under the caption "Big Six" published the following advertisement early this year:

"A banner year is ahead for those firms who plan to develop the patronage and support of the medical profession for their products. Never were the opportunities greater, or the prospects brighter, for enlisting the aid of medical men in the successful merchandising of pure foods, sanitary supplies for the

home, school or public institution, hygienic clothing and foot wear, automobiles and automatic accessories, and high grade specialties in general appealing to the physician personally, or in his professional capacity.

"Through the services of 'The Big Six' reputable firms can secure for products of established merit, the favorable attention of over 100,000 of the country's foremost physicians.

"Certainly no other way of reaching the physician is so effective and economical as the use of advertising space in these recognized high-class journals. Owing to their standing and the fact that medical men preserve them indefinitely for repeated reference, they give a sustained service that is possible by no other class of publications.

"If you have something of real merit to introduce to American doctors, do not fail to investigate 'the Big Six.' It has paid others and paid them well, it will pay you."

An advertisement for the Interstate Medical Journal says in part:

"Here is a journal for the busy, thinking men of the profession, who demand authoritative and timely journalism service."

And the publishers of the American Journal of Clinical Medicine:

"Clinical Medicine is the great therapeutic journal. It is not intended for specialists and theorists. It is intended for general practitioners. Every number, every page, every line is selected with that point in view, to give you all the help we possible can. You need it, let us show you why."

The owners of the Therapeutic Gazette tell the medical profession that they regard each subscription as a contract with the physician to furnish him monthly with seventy-six pages of the most reliable information that can possibly be collected on the subject of therapeutics.

"Guarding your rights along these lines as carefully as we do, we beg of you to read the announcements of our advertisers and favor them with inquiries and requests for samples; and when doing so, please be so kind as to mention having seen the advertisement in the Therapeutic Gazette."

Of the Medical Council, we learn that:

"Its pages are filled with scientific material of that brief concise, practical character so easily assimilated and so very helpful in the physician's every day work. Especial attention is devoted to the business side of the physician's life. To the busiest, most prosperous physicians Medical Council has become indispensable. No journal in America is more conscientious concerning the character of its advertising pages than Medical Council."

NOSTRUMS ADVERTISED IN THE "BIG SIX."

Aletris Cordial
Anasarcin
Angier's Petroleum Emulsion
Antiphlogistine
Betul-Ol
Bromidia
Burnham's Soluble Iodine
Cactina Pillets
Campho-Phenique
Celerina
Chionia
Citrolax
Colchi-Sal
Crotalin
Cystogen Aperient
Dermatone
Dioviburnia
Ergoapiol
Fellows' Syrup of the Hypophosphites
Formamint
Gastrogen Tablets
Glyco-Heroin
Glyco-Thymoline
Gray's Glycerine Tonic
H-M-C (Abbott)
Hayden's Viburnum Compound
Micajah's Wafers
Neurosine
Noitol
Palpebrine
Papine
Pasadyne
Peacock's Bromides
Pepto-Mangan (Gude)
Phenalgin
Protonuclein and Protonuclein Beta
Prunoids
Resinol
Respirazone
Sanmetto
Secretagen
Sedobrol Roche
Seng
Three Chlorides (Henry)
Tri-Iodides (Henry)
Trophonine
Unguentine

In fairness to the Medical Council it should be said that this publication has, during the past six or eight months, purged its advertising pages of many of the more objectionable products. It is understood that further deletions are under consideration.

How careful the owners and editors of the "Big Six" journals are to present authoritative information in their advertising pages is evidenced by the accompanying list showing some of the medicinal articles advertised in recent, 1914, numbers of these six obstensibly high-principled medical journals. Many of the articles included in this list can safely be classed with the more obnoxious nostrums of the "patent medicine" type and like the latter class are, in many instances, simply frauds, the sale of which should not be tolerated.

How closely the method of advertising these several preparations simulates that adopted by the manufacturers of "patent medicines" is evidenced by the fact that within the past year the assertions made in many of the advertisements have materially changed and the statement that the preparation is "an efficient remedy" in place of "a positive cure" is now generally used. To be somewhat more impressive the manufacturers frequently utilize the assertion that their preparation "seems to exert an almost specific effect" or the equally misleading statement, "no remedy at the command of the profession is more valuable than" the preparation under discussion. Not infrequently the advertiser also adds the additional promise that his preparation "will not disappoint you."

A careful study of the accompanying list ought to convince the thoughtful practitioner that many if not all of the nostrums advertised in these several journals are fully as objectionable as those advertised in the daily press and will further convey the rather sorrowful conviction that until a distinct majority of the "100,000 of the country's foremost physicians," who are said to be subscribers to these journals, will devote themselves to the best that is in their profession, we have little or no right to expect that the public at large will believe us to be less gullible than the most unsophisticated layman or that our opinion regarding any one nostrum is not influenced by our interest, direct or indirect, in one or more of the other secret or semi-secret preparations that are equally bad.

Deaths

W. H. Taylor, coroner of Genesee County, and prominent as a physician, died at 9 o'clock October 29, 1914, at his home as the result of a stroke of apoplexy. Dr. Taylor was 41 years old and was born in Pine Run, Genesee County. His father, Philander Taylor, was a native of New York state and came to Michigan about 80 years ago, being among the earliest pioneers in this part of the country. He was a practising physician. Dr. W. H. Taylor studied with his father and completed his course in the Detroit Medical College in 1896. He first practiced in Clio for three years and the past eleven years of his life has been spent in Flint. Dr. Taylor is survived by his wife and two children.

Correspondence

Dr. F. C. Warnshuis, Secretary Michigan State Medical Society, Grand Rapids, Mich.

Dear Doctor Warnshuis:

In an effort to secure a reliable list of hospitals which may be considered acceptable from the standpoint of furnishing a satisfactory training for interns, our Council has appointed in each state a committee of three to act in an advisory capacity. On these committees we have, so far as possible, secured, representatives of (1) the state medical association; (2) the state licensing board; and (3) a high-grade medical school (where there is one in the state). The committee which has been selected for Michigan is as follows: Dr. Reuben Peterson, chairman, Drs. Benjamin R. Schenk, and W. K. West.

Would if not be an excellent plan for your State Medical Society to take action endorsing this committee and in that way be in position to obtain from the committee an official report regarding the hospital situation in Michigan? An endorsement of the committee and its work by your society would give added weight to such lists as are prepared.

Very truly yours,

COUNCIL ON MEDICAL EDUCATION,
Per N. P. COLWELL, Secretary.

State News Notes

The following officers were elected at the annual meeting of the State Tuberculosis Association that was held in Muskegon on Oct. 29-30:

President—Dr. F. A. Fisher, Hancock.
Vice-President—Mrs. L. E. Gretter, Detroit.
Secretary—Miss Carol W. Walton, Ann Arbor.
Treasurer—Dr. H. J. Hartz, Detroit.

Grand Rapids was selected as the place for holding the 1915 meeting.

We are of the opinion that Dr. W. H. Sawyer of Hillsdale wil now either equip his car with electric lights or carry a gas tank key chained to his person. after his experience of running into a telephone pole after dark without lights lit on his machine. We are happy to report that the only damage done was to the car—and to the post.

Dr. G. A. Trueman of Marquette sustained a fracture of the skull when the auto in which he was riding turned turtle. The doctor was taken to Chicago for treatment. We are unadvised as to the outcome of the injury.

The Committee on Legislation and the Publication Committee held a joint meeting in Ann Arbor on Nov. 11. Plans for activity during the coming session of the legislature were discussed.

Dr. Edgar A. Planck, of Union, Cass county, a member of the Michigan State Medical Society since 1896, has been elected to the State Senate from the Seventh Senatorial District.

Dr. T. M. Koon of Grand Rapids is confined to a hospital in Minneapolis where he was taken ill while on a vacation.

Dr. Roy Baribeau of Grand Ledge has located in Battle Creek.

Dr. A. L. Laing of Escanaba has been appointed as the official surgeon for the Soo Line.

Dr. S. R. Light has been elected President of the Bronson Hospital Association of Kalamazoo.

Dr. A. F. Woodward of Pontiac has located in Detroit.

Dr. J. B. Kennedy of Detroit is a candidate for membership on the Detroit Library Board.

Dr. A. B. Spinney of Smyrna has been sentenced to pay a fine of $20.00 for violating the State Medical Act.

Dr. E. J. Bernstein of Kalamazoo has moved into new offices and is now located at 523 W. Main St.

Dr. W. R. Stringham of Cheboygan is doing post graduate work in Detroit.

By reason of poor health, Dr. J. W. Toan of Muir has given up practice.

Dr. W. M. Harrison of Sodus is now located in St. Joseph.

Dr. N. N. Read of Owosso has moved to Albuqurque, N. M. and is there engaged in sanitarium work.

Dr. I. N. Monfort of Ithaca has sold his practice to C. E. Burt of Belvidere, Ill.

Dr. James Gostanian of the Soo has located in Detroit.

Dr. S. R. Coleman of Carson City has moved to Miama, Florida.

Dr. P. M. Vanden Berg of Grand Haven has been appointed County Jail Physician.

A new addition is being built to the Woman's Hospital of Saginaw.

The Nichols Memorial Hospital of Battle Creek has received a bequest of $25,000 from Mrs. Hannah Swift of Quincy.

County Society News

BERRIEN COUNTY

The last two meetings of the Berrien County Medical Society were held respectively on October 8, 1914 in St. Joseph, and November 12, 1914 in Benton Harbor.

Dr. Bayard Holmes of Chicago gave an inspiring lecture on the Abderhalden's Reaction at our October meeting. His talk referred more especially to the reaction in Dementia Praecox, although he covered the subject in general most thoroughly. Many questions were asked by the doctors present which were most promptly and thoroughly answered.

Dr. N. A. Herring of Benton Harbor read a report of the State Medical Society at Lansing, after which it was generally agreed by those present that next year would find our delegate not alone from his society at the meeting.

At our November meeting we had the pleasure of a most scientific address by Dr. Herbert H. Babcock, of Chicago, on the Streptococcus Infections and their Relation to Endocarditis. He gave a complete laboratory and clinical description of the streptococcus viridans and showed some excellent specimens of appendicitis, and endocarditis produced by streptococcic infection in the laboratory and clinically.

Twenty-four members and guests were present After both meetings an informal supper was enjoyed.

MABEL E. ELLIOTT, Secretary.

CALHOUN COUNTY

PROGRAM

Tuesday evening, Nov. 3, 1914 at 8:00 o'clock. Chamber of Commerce Rooms, Battle Creek.

The Beginning of Degenerations of the Lateral and Posterior Columns of the Spinal Cord, Associated With Toxemia and Anemia, With Brief Clinical Report of Four Cases. Illustrated With Lantern Slides.
Dr. W. H. Riley,

Interesting Case Reports.
Dr. J. L. Ramsdell.

Address: Organization—County, State and National.
Mr. Theo. W. Singer.

ANNOUNCEMENTS.

Our next meeting will be the annual meeting and will occur on the first of December, at which time the annual election of officers will occur, and it is hoped that each committee chairman will have a

report for the Society. May we expect also a report from our Councilor and from our Delegate to the State Society?

The last meeting provided for the appointment of a committee to make arrangements for securing certain old, rare and valuable books and instruments of interest to the profession, and to provide a suitable repository for the same. The President appointed the following members for that committee: Drs. J. C. Brown, C. E. Stewart, A. S. Kimball and A. F. Kingsley.

NEWS ITEMS.

Don't let the fact that this meeting occurs on election day, deter anyone from attending. The polls will be closed before the time for the meeting, and we shall endeavor to receive election returns at the meeting.

Dr. Fred W. Phillips, whose offices are in the Bromberg Block in this city, was elected to membership in our Society at our last meeting, while the applications of Dr. R. E. Dullam and Dr. Carl G. Wencke were received and referred to the Board of Censors. These names are to be acted upon at this meeting.

WESTERN MICHIGAN TRIOLOGICAL SOCIETY

READING OF PAPERS.

Glioma of the Retina with Report of Nine Cases.
D. Emmet Welsh, Grand Rapids.

Atrophic Rhinitis.
J. W. Shank, Grand Rapids.

ATROPHIC RHINITIS.

J. W. SHANK, M.D.
GRAND RAPIDS, MICH.

I wish to present a report of three cases of atrophic rhinitis which I have treated in the past year by radical methods.

CASE 1. Was a young lady of twenty-five who came to me complaining of a sore throat, pain upon swallowing, a more or less constant cold in the head with obstruction of the nose at times and some headache. She was very anemic; examination showed unusually wide nasal chambers, large crusts in the middle and superior meatus and marked atrophy of the turbinates and membrane.

After thoroughly cleaning the nose of crusts, it was easy to demonstrate the pus coming from the middle and superior meatus. An X-Ray showed that the frontal and ethmoids on either side were cloudy. From these findings a diagnosis of atrophic rhinitis with purulent ethmoiditis was made.

Treatment.—Under ether, the ethmoids were completely exenterated, the sphenoids widely opened and found to contain pus. The naso-frontal ducts were enlarged.

The after treatment consisted of cleaning the nasal mucous membrane with cotton mops and applying nitrate of silver solution to the wound areas.

The throat condition improved rapidly and the headaches disappeared. The discharge lessened gradually, until at the end of three months it had practically ceased.

The turbinates and Schneiderian membrane, however, are unchanged. She has been using scarlet red for several months with no apparent benefit in the atrophic condition. Her general condition is greatly improved and she has gained several pounds in weight; no internal medication.

CASE 2. A lady of thirty, who came complaining of a very bad breath and severe catarrh which had lasted several years. She had frontal headaches at times and frequently discharged large malodorous scabs from the nose. She presented the characteristic nose: flattened bridge and wide nostrils. She was markedly anemic with a very sallow complexion.

The rhinoscopic examination presented a picture similar to the first case except that the left antrum was cloudy and found to ctontain pus upon irrigation.

Treatment.—Under general anesthesia the ethmoids and sphencids were exenterated and a large window resected from the naso-antral wal.

The after treatment was similar to the first case; the discharge promptly diminished in quantity and the headaches stopped. At the end of four months the discharge was very scanty. There was no return of the fetid breath. Her complexion has cleared up and she has gained considerably in weight. There is no improvement in the atrophic condition and the dryness is somewnat troublesome but she considers herself cured.

CASE 3. A boy of twelve, who complained of severe frontal headaches, which had been growing worse for three years. He also had obstruction to nasal breathing, fetid breath, and a profuse purulent discharge with crusts. He was under size and poorly nourished.

Rhinoscopic examination showed a marked deviation of the septum, which considerably obstructed both nostrils and, in addition, atrophic tubinates and membrane. Pus was seen coming from the middle and superior meatus; the floor of either frontal sinus was tender on pressure.

Treatment.—His ethmoids and sphenoids were exenterated under local anesthesia and found to contain pus. The naso-frontal ducts were enlarged, the frontal sinuses also contained pus.

He was several days recovering from the operation, which was rather severe for one of his age and condition.

The headaches were entirely relieved, the discharge gradually diminished until at the end of three months there was very little, and I might say, in my experience there always remains after total ethmoid exenteration a scanty discharge.

At the present time, (eight months later) he has no headaches, no odor to the breath, and looks and feels fine. He has gained six pounds in weight. The atrophy remains unchanged, but there is no discomfort from dryness, which I attribute to the deviation of the septum which greatly retards the air currents through the nose.

Of course these three cases would hardly be called a series, but from my study of them I find certain things common to them all, that is, the atrophy in each case is accompanied by suppurative multi-sinusitis. The headaches cause a large part of the suffering and result from the sinusitis.

The anemia which was present in these cases was probably toxic in origin and is evidently secondary to the sinus disease because the eradication of the suppuration relieved it. The large crusts are the dessicated discharge from the suppurative sinusitis and the fetid odor is due to the putrefaction of portions of this discharge under the crusts.

The dryness of the nose and throat, I believe, is not entirely due to the atrophic conditions of the membrane because the large volume of air passing through the nasal chambers would naturally take up any moisture present and the obstruction from the deviated septum in Case Three renders him quite comfortable as far as dryness is concerned.

The atrophy, once it has taken place, is permanent regardless of any treatment as far as I can ascertain. The sense of smell which was entirely lost in all these cases has in some degree returned.

Cases 1 and 2 will be greatly improved by the use of wax under the membranes which I intend to use soon.

DISCUSSION.

Dr. Wm. J. Bird, Flint, opened the discussion on Dr. Welsh's paper, advising early operation after diagnosis. He believes transillumination of the globe, one of our best means of diagnosis.

Dr. L. A. Roller, Grand Rapids, reported three cases occurring in his practice, two of which he has lost track of. The other died after enucleation. He regards this condition as being very grave.

Dr. W. P. Gamber, Muskegon, reported one case of glioma coming under his observation, that resulted fatally after enucleation.

Dr. E. N. Smith, Grand Rapids, thought the "watchful waiting" policy was preferable, owing to the grave outcome, and empty sockets being left as a reminder of the diseased condition.

Dr. R. J. Kirkland, Grand Rapids, spoke of one case seen and operated upon in which an artificial eye has been worn for twelve years. The growth appeared in this case to be round celled sarcoma.

Dr. E. J. Bernstein, Kalamazoo, has seen two or three cases in his practice and he advised early enucleation after diagnosis has been made and after consulation with at least two or three other oculists.

Dr. Welsh, closing, stated that the extention of the disease is through the nerve and not by continuity of the orbital tissue. In cases below three years of age he finds icnreased tension.

Dr. E. N. Smith, Grand Rapids, opened the discussion on Dr. Shank's paper and spoke of the difficulty encountered in treating ozena. He mentioned the serum treatment as conducted in Vienna.

Dr. W. G. Bird advocated the use of scarlet red in 5 per

cent. solution of mucilage of acacia as it is retained for forty-eight hours on mucolus membranes.

BUSINESS MEETING.

The meeting was called to order in Dr. Welsh's office by the President.

Dr. D. Emmett Welsh presented the following applications for membership: R. J. Kirkland, Grand Rapids, E. W. Tolley, Grand Rapids, O. I. Ricker, Cadillac, and Herman C. Hill, Benton Harbor.

The President explained that the requirements for membership in our association are the same as that of the American Academy of Ophthalmology and Oto-Laryngology.

The applications were placed on file to be voted on at the next meeting.

Thre were present from out of town, Drs. Bernstein, Winter, Bird, Gamber, besides several guests.

WILFRID HAUGHEY, Secretary.

EATON COUNTY

The annual meeting of the Eaton County Medical Society was held at Charlotte, Michigan, Oct. 29, 1914, with a good attendance. The program was as follows:

1. Business meeting called to order at Dr. Sackett's office by President Stimson.
2. Reading of minutes of last meeting.
3. Communication.
4. Report of Secretary and Treasurer. Dr. Sackett.
5. Report of Delegates at State Medical Society. Dr. Rockwell.
6. Presentation of eleven applications for membership to this Society. This good work was carried on by Mr. Singer of the A.M. A. whom we wish to thank very kindly.
7. A movement is on foot to have our meetings every two months, if not every month. This will be discussed and voted upon at our next meeting.
8. Election of officers. The officers chosen for the ensuing year are as follows:
   President—W. E. Newark, Charlotte.
   Vice-Pres.—Walter Taylor, Pottersville.
   Sec. and Treas.—G. M. Byington, Charlotte.
   Delegate to Mich. State Med. Society—A. R. Stealy, Charlotte.
   Alternate—A. H. Burleson, Olivet.
   Member Medico-Legal Committee—A. W. Adams, Bellevue.

Adjourned for dinner.

2:00 P. M.

Neurological Clinic was held at the Hospital by Dr. David Inglis of Detroit. Ample clinical material was present and all profited very much by Dr. Inglis' interesting discussion of these cases.

I am quite sure that all members present returned home, feeling that their time had been well spent and their profit had been greater than their loss. At each meeting we endeavor to have something interesting, usually some one who is a live wire to hold a clinic.

Be sure to attend our next, the last Thursday in January. We want you there.

G. M. BYINGTON, Secretary.

GENESEE COUNTY

The annual meeting of the Genesee County Medical Society was held October 27, 1914, in the Masonic Temple, Flint, Mich.

Program.

"The Necessary Preparation for Prostatectomy." Dr. Dean Loree, Ann Arbor.

Discussion opened by Dr. H. E. Randall.

"Cardiac Disease Associated With Mental Symptoms." Dr. P. E. Crawford.

Discussion by Dr. J. G. R. Manwaring.

The following officers were elected for the year 1914-1915:

President—B. E. Burnell.
Vice-President—C. H. O'Neil.
Secretary—R. S. Morrish.
Treasurer—F. B. Miner.
Board of Directors—To 1917, J. G. R. Manwaring. To 1919. A. S. Wheelock.
Delegates to the State Society Meeting—H. A. Stewart, W. G. Bird.
Alternates—C. P. Clark, J. C. Benson.
Member of Medico-Legal Committee—H. R. Niles.

The Annual report showed that the society has become incorporated during the year and has an active membership of eighty-three, or a percentage of 93.2 of all eligible practitioners in the county. The publication of a bulletin, while new to the Society has evidently found its place and has created an interest in society work. With the experience of the past year, the editorial staff hopes to be in a position to offer a superior paper to the members and to serve as a stimulative to greater activity.

The President, Secretary and senior members of the Board of Directors were appointed, ex-officio, to act as a committee to co-operate with the State Board of Registration in Medicine, to enforce the Medical Practice Act in Genesee county.

After the business meeting dinner was served at the Woman's Exchange in the Y.W.C.A., about forty being present.

R. E. MORRISH, Secretary.

KALAMAZOO ACADEMY OF MEDICINE

PROGRAM

Tuesday, October 27, 1914. 1:30 p. m. Public Library Building.

1. Technic and Treatment of some Common Diseases. Dr. R. N. Dunnington, Hartford.
   Discussion by Drs. W. E. Collins, D. J. Scholten.
2. Diagnosis of Extra-uterine Pregnancy. Dr. Leslie DeWitt, Kalamazoo.
   Discussion by Dr. C. E. Boys.
3. (a) Pathological Physiology of Intestinal Function.
   (b) Therapeutics of Intestinal Toxemia. Dr. E. L. Eggleston, Battle Creek.
   Discussion by Dr. A. W. Crane.

PROGRAM

Tuesday, November 10, 1914. 1:30 p. m. Academy of Medicine Rooms. Public Library Building.

Luncheon at the Park-American at 12 o'clock noon.

1. Clinic on Dematology and Syphilis. Dr. Udo J. Wile, Ann Arbor.
2. The Treatment of Crossed eyes in Children. Dr. Walter R. Parker, Detroit.
   Discussion by Dr. E. P. Wilbur, F. E. Grant and E. J. Bernstein.

PROGRAM

Special meeting, Thursday, November 12, 1914 at 8:00 p. m. Academy of Medicine Rooms. Public Library building.

Dinner at the Park-American at 7:00 p. m.

1. The Present Status in the Etiology of Cancer in the Light of Experimental Research and Clinical Observation—Lantern Slide Demonstration. Dr. H. R. Gaylord, Buffalo, N. Y.

KENT COUNTY

PROGRAM

Wednesday evening, November 11, 1914. Chamber of Commerce building.

Meeting called to order promptly at 8:15 o'clock.

ROUTINE BUSINESS.

"Some Observations on Hereditary Syphilis With Report of a Case."

Dr. C. E. Hooker.

"The Differential Diagnosis Between Functional and Organic Heart Murmurs With Special Reference to Life Insurance."

Dr. C. H. Johnston.

"A Discussion of One Hundred Consecutive Appendectomies."

Dr. F. C. Warnshuis.

"Report of Two Cases of Laryngeal Stridor."

Dr. F. N. Smith.

"Report of Two Cases of Insanity Following Pregnancy."

Dr. A. V. Wenger.

MARQUETTE-ALGER COUNTY

The October meeting of the Marquette Alger County Medical Society was held at the Morgan Heights Sanitorium Tuesday, Oct. 20 at the invitation of the Board of County Supervisors. Doctor C. Leslie Finch, Superintendent of the Sanitorium read a paper dealing with tuberculosis as related to sanitorium care treatment and a general discussion followed.

The Morgan Heights Sanitorium for the care and treatment of tubercular persons was built in 1911 by Marquette County at a cost up to the present of about $30,000. It has a capacity of twenty and this can be increased by the erection of more shacks. They have eighty acres and the appearance of the grounds and buildings indicate a prosperous model farm, as in fact it is. The care of the grounds and garden employ some of the time of those patients who need the exercise. The housing of the patients and the treatment are in line with modern thought and everything possible is done to give a homelike air to the place and to eliminate all appearances of institutionalism. Doctor C. Leslie Finch, late of Flint, is the resident superintendent and is doing good work. There is no doubt but that the influence emanating from this Sanitorium will be most beneficial to the people to this and the surrounding counties. The education of the public to the possibilities of care and prevention in this disease is most important. The Morgan Heights Sanitorium certainly affords a shining example of what great public service a single county is able to give.

C. B. FELCH, Secretary.

TRI-COUNTY

At the last meeting of the Tri-County Medical Society, the following officers were elected for the year 1915:

President—Dr. W. J. Smith, Cadillac.

Vice-President—Dr. S. E. Neihardt, South Boardman.

Sec.-Treas.—Dr. Rudolph J. E. Oden, Cadillac.

Board of Directors—Drs. C. E. Miller, W. F. Huntly, and W. J. Smith.

Program Committee—Drs. R. J. E. Oden, D. Ralston and G. Miller.

Delegate to State Society—Dr. Rudolph J. E. Oden.

Alternate to State Society—Dr. E. R. Babcock, Kalkaska.

Finance Committee—Drs. Wardel, Wallace and McMullen.

A well prepared paper on "Osteomyelitis" was read by Dr. W. J. Wallace of Manton. A general discussion followed.

R. ODEN, Secretary.

WAYNE COUNTY

PROGRAM

Monday, Nov. 9—Medical Section.

Perpetual Irregularity of the Heart. Lantern Denomstration. (Auricular Fibrillation).

Dr. Walter J. Wilson, Jr.

Discussion opened by Dr. Charles G. Jennings. Dr. Wm. M. Donald, Dr. Hugo Freund.

Report of the joint committee appointed by the Wayne County Medical Association, the East Side Physician's Association and the West Side Physician's Club, to consider the advisability of establishing a Credit Bureau.

To the Wayne County Medical Association:

1. We recommend the establishment of a credit or rating bureau.

II. Said bureau to be called "the Detroit Physician's Business Bureau.

III. A Committee to draft a Constitution and By-Laws.

IV. Said constitution and by-laws be submitted to each society for approval.

V. A policy as follows:

(a) The listing and prevention of bad accounts.
(b) A physician's business efficiency expert, (optional).
(c) A business educational campaign.
1. Yearly meetings in each society given to the study of better business methods.
(d) Investment information.
(e) Bookkeeping (optional).
(f) Collections (if deemed advisable later).

VI. Membership in this Bureau to consist of members in good standing in either the Wayne County Medical Association, the East Side Physician's Association, the West Side Physician's Association or any other recognized Medical Society.

VII. This Bureau to be under the control of a Board of Control, from representation from each society.

VIII. The headquarters of this bureau to be in the Wayne County Medical Society building.

IX. Provision in the By-Laws for the payment of listed accounts at the office of the bureau to a bonded office assistant.

Respectfully submitted,
J. E. Davis, Chairman.

The report of this committee was accepted and the committee was continued in office to complete their recommendations.

PROGRAM

Monday, Oct. 26—Surgical Section.

Observations from over 1,000 Cystoscopic Examinations With Illustrations.

Dr. William J. Cassidy.

Discussion opened by Dr. John C. Dodds, Dr. William E. Keane.

GENERAL MEETING.

October 19.

Mr. Barrett, Secretary of the Detroit Convention Bureau, appeared before the Society to offer the aid of the Bureau in inviting the American Medical Association to hold the 1916 meeting in this city. The providing for a meeting or convention of this size is a very difficult undertaking and moreover, other large cities of the country are desirous of the honors and benefits which it may bring. The Convention Bureau is organized to meet the problems arising under these circumstances, the housing of the visitors, the halls of the meetings and other features of entertainment and education. He read a letter from Dr. V. C. Vaughan, Sr., President of The American Medical Association. While Dr. Vaughan would like to see the meeting held here, he doubts whether there is sufficient hotel room for the 12,000 or more who will be brought to the city, whether the places for the various section meetings are located to best advantage. Mr. Barrett believes that the objections of Dr. Vaughan can easily be met and hopes that we can convince the association of that fact.

The matter was referred to the Executive Committee for consideration and action.

The Constitution and By-Laws as drawn up by the committee and amended in general meeting were voted upon. These were adopted as amended except that the amendment of Chapter XI was voted down and the chapter as originally draughted by the committee was adopted.

PROGRAM.

Monday, Nov. 2—General Meeting.
Surgery of the Caecum.
Dr. James E. Davis.
Discussion opened by Dr. L. J. Hirschman, Dr J. A. MacMillian, Dr. H. W. Hewitt.

Book Reviews

THE CLINICS OF JOHN B. MURPHY, M.D., at Mercy Hospital, Chicago. Volume III. Number V. Octavo of 190 pages, 61 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Published Bi-Monthly. Price per year: Paper, $8.00. Cloth, $12.00.

A glance at this contents is sufficient to impart the value of this number of these valuable clinics.

Murphy's Clinical Talks on Surgical and General Diagnosis.

A Diagnostic Talk on the Symptoms and Signs of Renal and Ureteral Stone, Illustrated by a Case.

The Differential Diagnosis of the Causes of Hematuria.

Intrathoracic Sarcoma Starting from the Vertebral Column, Differential Diagnosis.

A Talk on the Diagnosis of Meningitis and the Differentiation of its Varities.

Perinephritic Abscess, Probably Embolic in Origin.

Traumatic Epilepsy.

Epithelioma of Glans Penis.

Carcinoma of the Corona Penis With Metastasis in the Inguinal Glands.

Fecal Fistula.

Old Inversion Fracture of the Ankle.

Inversion Fracture of the Ankle Treated as a Pott's Fracture.

Old Inversion Fracture of the Left Ankle Treated.

Old Pott's Fracture.

Removal of Nail from the Right Tibia and Os Calcis.

A Recent Report from an Old Case of Knee Arthroplasy.

Arthroplasty of the Knee for Bony Ankylosis.

Athroplasty of the Elbow for Complete Bony Ankylosis Between the Humerous and Ulma in a Position of Complete Extension.

Hypertrophy of the Middle Lobe of the Prostate, Urinary Retention.—Prostatectomy.

Impertrophy Anus.

The Use of Radium and the X-Ray in the Treatment of Cancer.

ABDOMINAL OPERATIONS. By Sir Berkeley Moynihan, M.S. (London) F.R.C.S. Leeds, England. Third edition, entirely reset and enlarged. Two octavo volumes totaling 980 pages, with 371 illustrations, 5 in colors. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, $10.00, net; Half Morocco, $13.00 net.

This third edition—so thoroughly revised that the work has been re-set from cover to cover, contains 150 pages of the new text and 80 new illustrations—is in every reality an atlas of abdominal surgery. It thus becomes the best work on the subject. It is a personal record of the author's vast and varied experiences. It is a practical necessity for everyone engaged in abdominal surgery. We know of no other publication that covers the field so thoroughly and satisfactorily as does this work.

You get Moynihan's successful methods of diagnosis and technic. The bacteriology of the stomach and intestines is considered very fully. Of equal importance are the chapters on preparation and sterilization of the patient and operator, complications, sequels and after care.

The various operations are described in detail and the text is made clearer by the valuable illustrations and illustrative cases and case histories.

The question of drainage, of paramount importance in abdominal surgery, is clearly presented in a definite manner.

It is difficult to select any one feature of the work that deserves greater comment than do others. The entire contents of the two volumes is of such nature that Moynihan's Abdominal Operations must long occupy a pre-eminent position in surgical literature. The profession should indeed be grateful to the publishers for presenting them with this opportunity of securing the experience and teachings of so eminent authority as is Moynihan.

THE PRACTITIONER'S VISITING LIST FOR 1915. Four styles: weekly, monthly, perpetual, sixty-patient. Pocket size; substantially bound in leather with flap, pocket, etc.: $1.25, net. Lea & Febiger, Publishers, Philadelphia and New York.

This is a practical convenience which, once possessed by the busy medical man, immediately becomes indispensable. It is a matter of common remark that most forms of pocket memoranda are admirably designed to further the immediate and permanent loss of the data it is desired to preserve. This, happily is not the case with this carefully designed Visiting List and pocket consultant, which is the final evolution of 30 years' experience in meeting and anticipating the needs of the practising physician.

It affords a simple and complete system for keeping the records of daily practice. In addition to the ruled pages for daily calls and their notes, general memoranda, addresses, cash account, etc., it contains specially aranged spaces for data desired for permanent record such as births, deaths, etc. The value of such records is best appreciated by the physician who has been suddenly confronted by the

necessity of producing such data after the lapse of years and in the absence of an orderly system for the preservation.

If the record blanks constitute a complete and thoroughly convenient record of practice, effectual insurance against financial loss or an overburdened memory, the supplementary text constitutes a handy reference work of equal value in practice or emergency. Among the useful features are tables of weights and measures and comparative scales; a scheme of dentition; incompatibles; poisons and antidotes; directions for affecting artificial respiration; an extensive table of doses; an alphabetically arranged table of diseases and remedies; table of eruptive fevers; instructions for urinalysis and directions for ligation of arteries.

THE TONSIL, FAUCIAL, LINGUAL AND PHARYNGEAL. With Some Accounts of the Posterior and Lateral Pharyngeal Nodules. By Harry A. Barnes, M.D., Instructor in Laryngology, Harvard Medical School; Surgeon in the Department of the Nose and Throat, Boston Dispensary; Assistant Laryngologist, Massachusetts General Hospital, ,etc. 16 pages, illustrated. Cloth, price $3.00. C. V. Mosby Co., St. Louis, Mo.

The mass of literature that has appeared in various medical publications during the past several years has not been entirely satisfactory, especially to the general practitioner. Opinions expressed have been varied and wide. Many important points remain untouched and the tonsil has thus been a problem whenever the physician's attention was directed to it.

A satisfactory and fairly dependable basis has been desired and is supplied in this effort of the author. He discusses in an open yet pointed manner nature of lymphoid tissue, the development of the tonsil, its anatomy and histology, function, pathology and diseases, complications and treatment, medicinal and surgical. The clearness of the discussion is refreshing. All in all one is presented with a valuable treatise and from it he will gain information that will enable him to advise satisfactorily all who may consult him regarding their tonsils. It is a work especially adapted to the general practitioner. We commend it to them with the assurance that they will value it highly and refer to it often.

PATHOGENIC MICROORGANISMS. (Including Bacteria and Protozoa). A Practical Manual for Students, Physicians and Health Officers. By William H. Park, M.D., Professor of Bacteriology and Hygiene in the University and Bellevue Hospital Medical College, and Director of the Bureau of Laboratories of the Department of Health, New York City, and Anna W. Williams, M.D., Assistant Director of the Bureau of Laboratories, New York City; Consulting Pathologist to the New York Infirmary for Women and Children. New (5th) edition, thoroughly revised. Octavo, 684 pages, with 210 illustrations and nine full-page plates. Cloth, $4.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

The appearance of a new edition of this favored and standard work is not only justified but demanded by the advances which have been recorded in this department, and which the authors have presented in complete detail. They have not, however, limited themselves to bringing this work strictly up to date, but have added greatly to its general usefulness by a substantial enlargement of the sections devoted to the practical application of this science. The revision has been so thorough that this edition is virtually a new book.

The student and laboratory worker, the sanitarian and the practitioner will find this work equally well suited to their needs. The features that have won recognition in its previous editions have been substantially amplified, while every advance has been treated in the light of the author's unexcelled opportunities for laboratory investigation, and summarized for reference.

New sections have been added and entire chapters rewritten. The material has been quite generally re-arranged in order to bring more closely together all the pathogenic organisms. Under this arrangement, Part One deals with general characteristics and methods of study of all the micro-organisms; Part two includes the study of individual pathogenic micro-organisms and their near relatives; Part Three is devoted to "Applied Micro-biology."

The orderliness of its arrangement, simplicity of expression, and attention to details makes this work of particular value to the student. It is a thoroughly safe guide to laboratory procedure and affords valuable detail in technic not available elsewhere.

Much essential data has been added to the sections devoted to the consideration of immunity, the filtrable viruses; preparation and use of media and aniline dyes. The work has a peculiar claim on the appreciation of the general practitioner. Its authors are bacteriologists who deal constantly with practical problems. It presents many points of value for him aside from its usefulness as a compendium of all that science has accomplished in this field and as a laboratory guide.

Its splendid index makes it a most convenient work of reference. It considers protozoa and bacteria in close relation to the symptoms and clinical manifestations produced by them, a point of interest to the practitioner in search of information on the practical application of this science.

The broad scope of this work is evidenced by the full consideration accorded such subjects as soil and seweage bacteria, the bacteria of industry; disinfectants; the bacteriology of milk in relation to disease; bacteriological examination of air, water and soil; and water purification.

MEDICAL JURISPRUDENCE. A Statement of the Law of Forensic Medicine. By Elmer D. Brothers, B.S., L.L.B., Member of the Chicago Bar; Lecturer on Jurisprudence in the Medical and Dental Departments of the University of Illinois and in the John Marshall Law School. Cloth, 295 pages. Price $3.00. C. V. Mosby Co., St. Louis, Mo.

So many of the existing works on Jurisprudence are but mere repetitions of illustrative cases from which the reader must form his own conclusions, and lacking legal training his conclusions may be erroneous. This author presents the profession with a most commendable volume, written understandingly and so explicitly that the reader cannot help but acquire a full knowledge of the subject.

The legal rights of patient, physician, surgeon, relatives and friends are set forth so as to leave no room for misunderstanding or question.

Many a worry may be done away with if professional men were more familiar with their legal rights, privileges and responsibilities. You can secure this familiarity and peace of mind if you but purchase and read this satisfactory work.